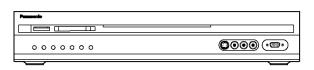
# Service Manual

**Digital Media Receiver** 





# TU-PT700U

**GP7P Chassis** 

# **Specifications**

Power Source 120 V AC, 60 Hz

**Power Consumption** 

Maximum 45 W Stand-by condition 22 W

**Dimensions (W × H × D)**  $16.9" (430 \text{ mm}) \times 3.4" (86 \text{ mm}) \times 14.8" (377 \text{ mm})$ 

Mass (weight) approx. 13.2 lbs

Channel Capability-ATSC / NTSC VHF/ UHF : 2-69, CATV:1-135

**FEATURES** Two screen display functions LINEAR PIP

BBE VIVA 3D V-Chip
CLOSED CAPTION HDMI

3D Y/C FILTER JPEG Viewer

CableCARD TM slot

Accessories Supplied AC cord

Display-Receiver cable

**Operating Condition** 

Temperature 32 °F - 104 °F (0 °C - 40 °C)

Humidity 20 % - 80 %

**Connection Terminals** 

AV PROG. OUT

RGB INPUT D-SUB 15pin R,G,B / 0.7 Vp-p (75  $\Omega$ )

HD VD / TTL Level (high impedance)

AV INPUT 1- 3 VIDEO (Phono Jack Type) 1.0 Vp-p (75  $\Omega$ )

S-VIDEO (Mini DIN 4-pin) Y : 1.0 Vp-p (75  $\Omega$ ) C : 0.286 Vp-p (75  $\Omega$ )

AUDIO L-R (Phono Jack Type x 2) 0.5 Vrms

VIDEO (Phono Jack Type) 1.0 Vp-p (75 Ω)

AUDIO L-R (Phono Jack Type x 2) 0.5 Vrms

AUDIO OUT AUDIO L-R (Phono Jack Type x 2) 0.5 Vrms

COMPONENT VIDEO INPUT1-2 Y

PB / PR 0.7 Vp-p

AUDIO L-R (Phono Jack Type × 2) 0.5 Vrms

HDMI/AUDIO INPUT HDMI type A Connector

AUDIO L-R (Phono Jack Type x 2)

DIGITAL AUDIO OUT PCM / Dolby Digital, Fiber Optic
DISPLAY OUT D-sub 26-pin, Digital RGB 24-pin

0.5 Vrms

1.0 Vp-p (including sync)



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#### Note:

Design and specifications are subject to change without notice. Weight and Dimensions shown are approximate.

# **MARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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# 1 Applicable signals (Video/ Component/ RGB/ PC/ HDMI input signals)

# **VIDEO** input

	signal name	horizontal frequency(kHz)	vertical frequency(Hz)
1	NTSC	15.73	59.94

# Applicable input signals (\* mark)

	signal name	horizontal frequency(kHz)	vertical frequency(Hz)	COMPONENT	PC	HDMI
1	525 (480) /60i	15.73	59.94	*	*	*
2	525 (480) /60p	31.47	59.94	*	*	*
3	750 (720) /60p	45.00	60.00		*	
4	1,125 (1,080) /60i	33.75	59.94	*	*	*
5	640 × 400 @ 70	31.47	70.00		*	
6	640 × 480 @60	31.47	59.94		*	
7	Macintosh13" (640 × 480)	35.00	66.67		*	
8	640 × 480 @75	37.50	75.00		*	
9	852 × 480 @60	31.50	60.00		*	
10	800×600 @60	37.88	60.32		*	
11	800 × 600 @ 75	46.88	75.00		*	
12	800 × 600 @85	53.67	85.06		*	
13	Macintosh16" (832 × 624)	49.73	74.55		*	
14	1,024 × 768 @60	48.36	60.00		*	
15	1,024 × 768 @ 70	56.48	70.07		*	
16	1,024×768 @75	60.02	75.03		*	
17	1,024×768 @85	68.68	85.00		*	
18	Macintosh21" (1,152 × 870)	68.68	75.06		*	
19	1,280 × 1,024 @60	63.98	60.02		*	
20	1,280 × 1,024 @75	79.98	75.03		*	
21	1,280 × 1,024 @85	91.15	85.02		*	
22	1,600 × 1,200 @60	75.00	60.00		*	

Note: Signals without above specification may not be displayed properly.

# 2 Safety Precautions

# 2.1. General Guidelines

- 1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
- 2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
- 3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

# 2.1.1. Leakage Current Cold Check

- Unplug the AC cord and connect a jumper between the two prongs on the plug.
- 2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between  $1 M \Omega$  and  $5.2 M \Omega$ .

When the exposed metal does not have a return path to the chassis, the reading must be  $\infty$ .

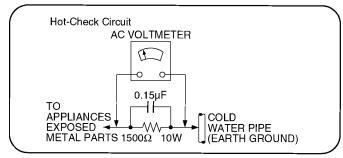


Figure 1

# 2.1.2. Leakage Current Hot Check (See Figure 1.)

- Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
- 2. Connect a  $1.5k\Omega$ , 10 watts resistor, in parallel with a  $0.15\mu F$  capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
- 3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
- Check each exposed metallic part, and measure the voltage at each point.
- Reverse the AC plug in the AC outlet and repeat each of the above measurements.
- 6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

# 3 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

- 1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
- 2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
- 3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
- 4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
- 5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
- 6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).
- 7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

#### Caution

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

#### IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety.

These parts are marked by  $\triangle$  in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

# 4 About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.

The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).

That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

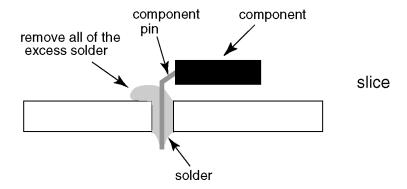
This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol [Pb] stamped on the back of PCB.

#### Caution

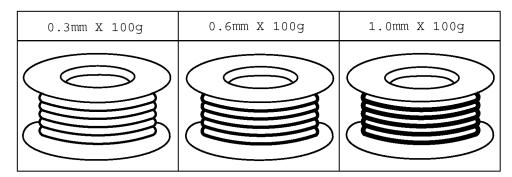
- Pb free solder has a higher melting point than standard solder. Typically the melting point is  $50 \sim 70$  °F ( $30\sim40$  °C) higher. Please use a high temperature soldering iron and set it to  $700 \pm 20$  °F ( $370 \pm 10$  °C).
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).

  If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



#### Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

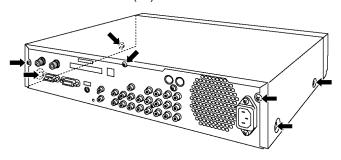


# 5 Service Hint

# 5.1. Chassis board layout

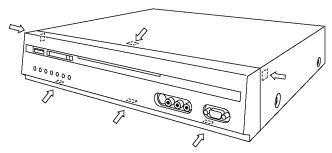
## Remove the Top cover

Remove the screws (x7).



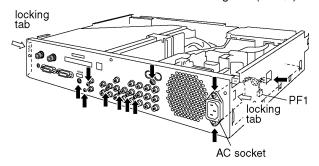
## Remove the Front panel

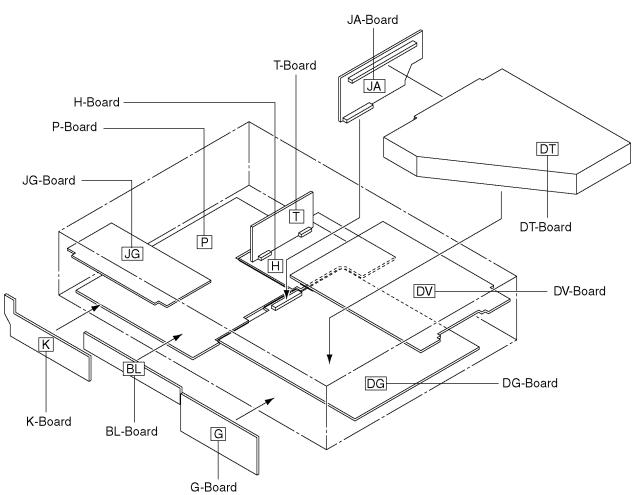
Release the Locking tabs at both side ( $x2 \Rightarrow$ ), bottom ( $x3 \Rightarrow$ ) and top ( $x1 \Rightarrow$ ).



# Remove the Rear panel

Remove the screws ( $\times 11 \implies$ ), a coupler (PF1), the AC socket and release the both side locking tabs( $\times 2 \implies$ ).





# 5.2. P.C.Board structure sheet of GP7P chassis

Board Name Function			
DT-Board	ATSC interface		
H-Board	Rear terminal (Component, Composite, S-video, Audio, Monitor out), AV input SW		
T-Board	Analog tuner		
DG-Board	Global tv signal processing Core (GC2M, GC2S), Micom, 64M SDRAM, Sync SW, BEE VIVA		
DV-Board	DVI I/F receiver, DVI/HDMI select, Audio DAC, AD converter, LVDS		
G-Board	Front AV (Video 3) input, PC input		
K-Board	Power SW, Power LED, Key SW		
P-Board	Power Supply		
BL-Board	Blue LED		
JA-Board	DT-Board - DG-Board connection		
JG-Board	JPEG Interface		

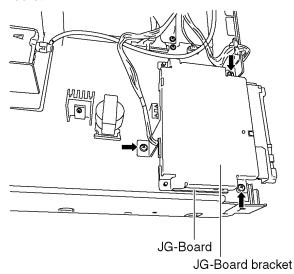
# 6 P.C.Board replacement method

#### **WARNING:**

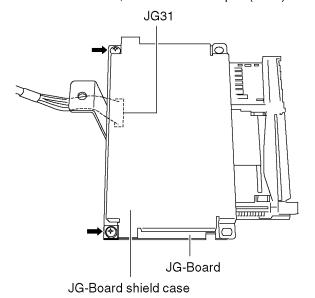
disconnect the unit from power source before disassembly

# 6.1. Remove the JG-Board

 Remove the screws (x3) and remove the JG-Board with the Bracket.

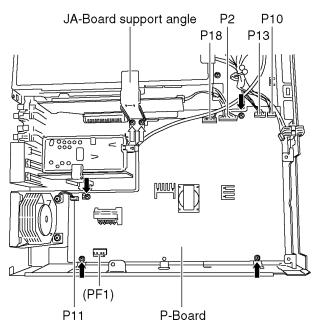


2. Remove the screws (x2) to remove the JG-Board bracket and the Shield cover, and remove a coupler (JG31).



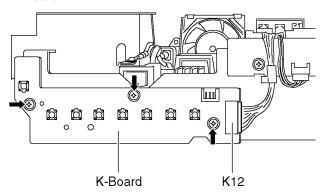
# 6.2. Remove the P-Board

- 1. Remove the couplers (P2, P10, P11, P13, P18, (PF1)), the screws (x2 →) and remove the JA-Board support angle.
- 2. Remove the screws (x4 ) and remove the P-Board.



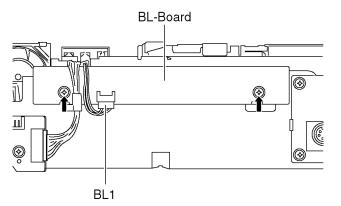
# 6.3. Remove the K-Board

1. Remove a coupler (K12), the screws (x3) and remove the K-Board.



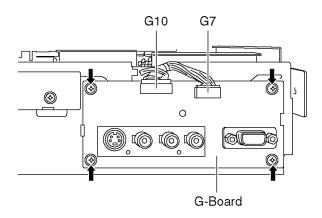
# 6.4. Remove the BL-Board

1. Remove a coupler (BL1), the screws (x2) and remove the BL-Board.



# 6.5. Remove the G-Board

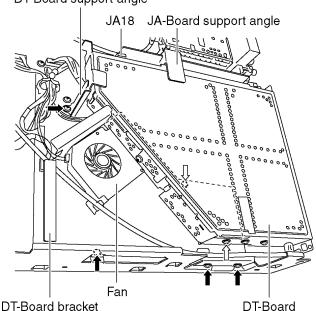
1. Remove the couplers (G7, G10), the screws (x4) and remove the G-Board.

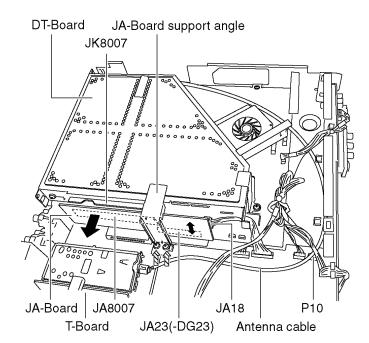


# 6.6. Remove the DT-Board and JA-Board

- 1. Remove the couplers (JA18: on the JA-Board, P10: on the P-Board)and an antenna cable (connected to the T-Board Tuner).
- 2. Remove the screws (x4 →) and the DT-Board support angle.
- 3. Remove the screws (x2 \infty) and the JA-Board support angle.
- 4. Disconnect the coupler (JA23-DG23) and remove the DT-Board with the JA-Board.
- 5. Disconnect the coupler (JA8007-JK8007) to separate the JA-Board and DT-Board.
- 6. Remove the screws (x2 ⇒) and remove the DT-Board bracket with the fan.

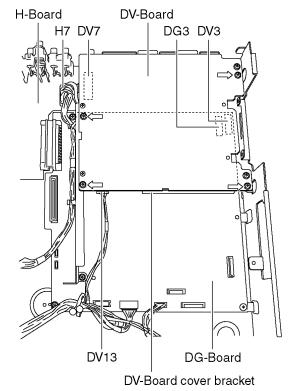
DT-Board support angle



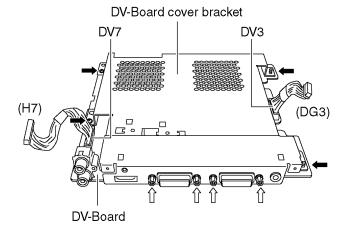


# 6.7. Remove the DV Board

Remove the screws (x4 ➡), the coupler (DG3: on the DG-Board, H7: on the H-Board, DV13) and remove the DV-Board with the DV-Board cover bracket.



- 2. Remove the screws (x4 →), the hex. head screws (x4 →) and the couplers (DV3, DV7).
- 3. Remove the DV-Board cover bracket from the DV-Board.



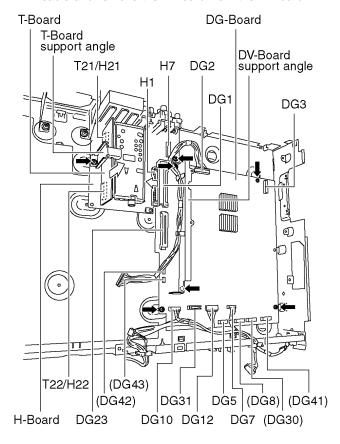
# 6.8. Remove the DG-Board, T-Board and H-Board

#### <DG-Board>

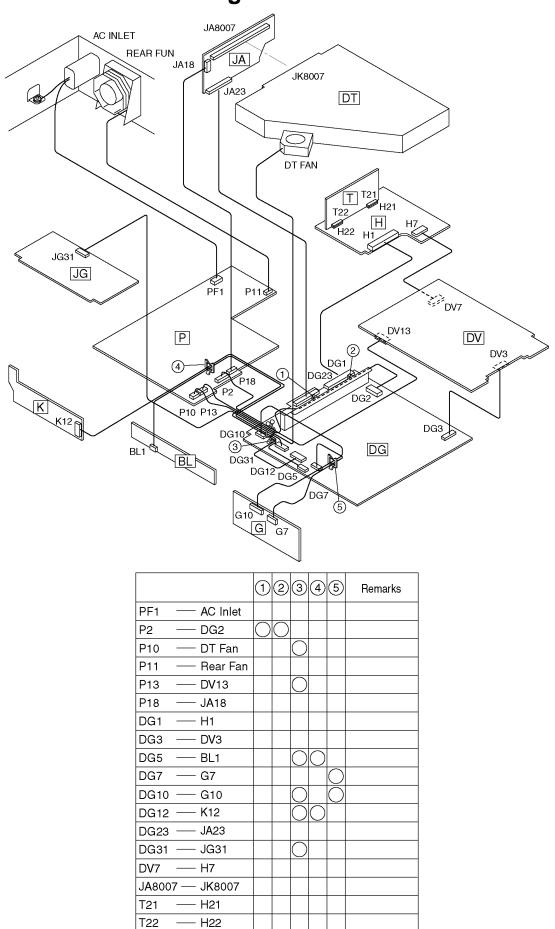
- 1. Remove the screws (x7), the couplers (DG2, DG5, DG7, DG10, DG12, DG31), DV-Board support angle and T-Board support angle.
- 2. Remove the DG-Board with the H-Board and T-Board.

## <H-Board, T-Board>

- 1. Disconnect the coupler (DG1-H1) and separate the DG-Board and H-Board with the T-Board.
- 2. Disconnect the couplers (T21/H21, T22/H22), the tuner cable and remove the T-Board from the H-Board.



# 7 Location of Lead Wiring



# **Alignment**

## Preparation:

- 1. Connect the Digital media receiver to the Plasma display by the system cables.
- 2. Place the units into IIC mode of CAT mode.

#### Sub contrast adjustment (NTSC) 8.1.

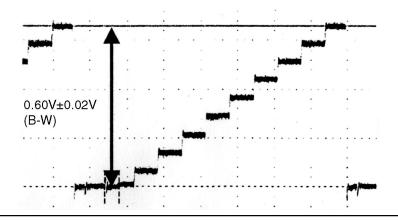
Preparation					
PICTURE:VIVID (NORMAL SET) ADJUSTMENT DATA: BRIGH, CONT					
ACL WHITE CHARACTER CORRECTION COLOR VPK (V OUTLINE) DSC AI	OFF OFF OFF OFF OFF OFF				

Set ABL operation to off in Contrast adjustment.

Cot 7 IDE operation to on in Contract adjustment.					
Measurement Instrument	Remarks				
1. Oscilloscope	Picture menu: VIVID				
2. Alignment equipment	Picture pattern: Studio color bar Probe: The signal should be terminated by 75 $\Omega$ , ±1% resistor.				
Extension cable kit (Part No.TZSC0704)					
3. Remote control	Not use Cross hatch signal				
A P. C. A. D. L.	•				

#### Adjustment Procedures

- 1. Apply the 10 stair-step (B/W) signal to Composite video input.
- 2. Connect the Oscilloscope to CN3303-A38 (G out) of G-Board.
- 3. Adjust Sub contrast so that the B-W (Blanking portion-White) is 0.60V±0.02V.
- 4. Also connect the oscilloscope to CN3303-A34 (R out) and observe both waveforms simultaneously.
- 5. Adjust R-drive so that the amplitude of R signal is same as G signal.
- 6. Connect the Oscilloscope to CN3303-A36 (B out) and CN3303-A38 (G out), and observe the both waveforms simultaneously.
- 7. Adjust B-drive so that the amplitude of B signal is same as G signal.



# 8.2. Sub contrast adjustment (HDTV)

# Preparation PICTURE:VIVID (NORMAL SET) ADJUSTMENT DATA: BRIGH, CONT ACL OFF WHITE CHARACTER CORRECTION OFF COLOR OFF VPK (V OUTLINE) OFF DSC OFF AI OFF

Measurement Instrument

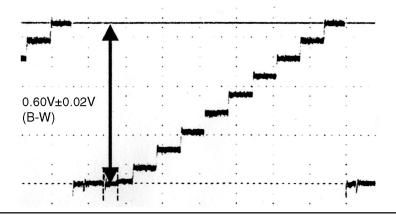
1. Oscilloscope
2. Alignment equipment
Extension cable kit (Part No.TZSC0704)
3. Remote control

Remarks

Picture menu: VIVID
Picture pattern: 10 stair-step

#### Adjustment Procedures

- 1. Apply the HD 10 stair-step signal to HD baseband signal.
- 2. Connect the Oscilloscope to CN3303-A38 (G out of DR-Board).
- 3. Adjust Sub contrast so that B-W is 0.60V±0.02V.
- 4. Also connect the oscilloscope to CN3303-A34 (R out) and observe both waveforms simultaneously.
- 5. Adjust R-drive so that the amplitude of R signal waveform is same as G signal.
- 6. Connect the Oscilloscope to CN3303-A38 (G out) and CN3303-A36 (B out), and observe the both waveforms simultaneously.
- 7. Adjust B-drive so that the amplitude of B signal is same as G signal.



# 8.3. A/D converter gain adjustment (480p . 1080i)

# Preparation PICTURE:VIVID (NORMAL SET) ADJUSTMENT DATA: BRIGH, CONT ACL WHITE CHARACTER CORRECTION COLOR VPK (V OUTLINE) DSC AI OFF OFF OFF OFF OFF

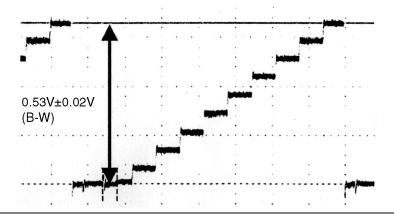
#### Note:

Set ABL operation to off in Contrast adjustment

Cot / IDE operation to on in Contract adjustment.					
Measurement Instrument	Remarks				
1. Oscilloscope	Picture menu: VIVID				
	Picture pattern: Studio color bar Probe: The signal should be terminated by 75 $\Omega$ , ±1% resistor.				
Extension cable kit (Part No.TZSC0704)					
3. Remote control	Not use Cross hatch signal				

### Adjustment Procedures

- 1. Apply the 10 stair-step (B/W) signal (480p or 480i) to HDMI input.
- 2. Connect the Oscilloscope to CN3303-A38 (G out of DR-Board).
- 3. Adjust ADC-G so that the B-W (Blanking portion-White) is 0.53V±0.02V.
- 4. Also connect the oscilloscope to CN3303-A34 and observe both waveforms simultaneously.
- 5. Adjust ADC-R so that the amplitude of R signal waveform is same as G signal.
- 6. Connect the Oscilloscope to CN3303-A38 (G out) and CN3303-A36 (B out), and observe both waveforms simultaneously.
- 7. Adjust ADC-B so that the amplitude of B signal is same as G signal.
- 8. Apply 1080i 10 stair-step (B/W) signal to HDMI input.
- 9. Perform same procedures (item 2-7) as 480p signal adjustment.



# 9 Self-check Function

When symptoms like "the power fails sometimes" or "sometimes there is no picture and/or sound" can not be confirmed at the time of servicing, the self-check function can be used to confirm the occurrence and to find the defective circuit.

In case of "power failure", flashing of the "POWER" indication (red) at the front of the unit can be used to narrow down the +B line.

# 9.1. Self-check of the microcomputer control system (bus line)

#### Indicaton method

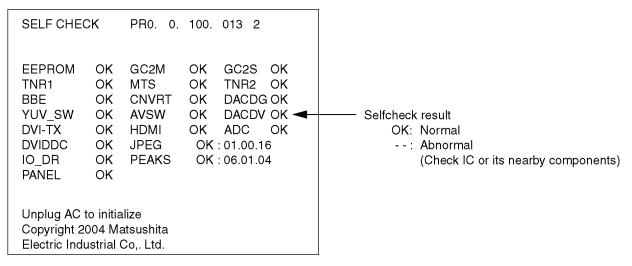
Connect the Plasma Display and the Digital Media Receiver.

Press the "OK" button in the control panel of the Digital media receiver simultaneously with the "POWER" button in the control panel of the unit. Hold them a few seconds.

#### Return to the normal screen

Press any button on the unit or in the remote control.

#### Screen Display



Display	y Ref. No. Description		Board	Remarks
EEPROM	IC002	EEPROM for Main MPU	DG	Receiver
TNR1	TNR8000	Tuner1	DT	Receiver
BBE	IC4203	BBE VIVA	DG	Receiver
YUV_SW	IC4302	YUV switch	Н	Receiver
DVI_TX	IC5201	LVDS	DV	Receiver
DVIDDC	IC5001	DDC EEPROM	DV	Receiver
IO_DR	IC3304	DVI I/F Reciver	DR	Display
PANEL		Panel		Display
GC2M	IC4501 Global TV Signal Processing Core (Main)		DG	Receiver
MTS	IC8008 NXTWARE		DT	Receiver
CNVRT	NVRT IC9869 A/D Converter		D	Display
AVSW IC4301 AV switch		AV switch	Н	Receiver
HDMI IC5003 HDMI Receiver		DV	Receiver	
JPEG	IC6513	JPEG I/F	JG	Receiver
PEAKS	IC8024	HDsL Peaks	DT	Receiver
GC2S	IC4502 Global TV Signal Processing Core (Sub)		DG	Receiver
TNR2	TU251	Tuner 2		Receiver
DACDG	IC8031	Expand DAC	DG	Receiver
DACDV	CDV IC5011 D/A Converter		DV	Receiver
ADC	IC5203	A/D Converter	DV	Receiver

# 9.2. Power LED Blinking timing chart

## 1. Subject

Information of LED Flashing timing chart.

#### 2. Contents

When an abnormality has occurred the unit, the protection circuit operates and reset to the stand by mode. At this time, the defective block can be identified by the number of blinkes of the Power LED on the front panel of the unit.

Blinking times	Point	Circuit Board	Parts
1 time	1 time 5V power supply trouble		IC7504
2 times	SOS Power circuit	Р	IC7501-IC7508
3 times	DTV DTV circuit	Р	IC404
4 times	FAN SOS	Р	IC7508
5 times	Power start(Note)	DV	JK5003, pin24(Note)

#### Note:

When 5 times LED blinking happened, power off and power on again, it will recover.

Exchange or check the JK5003, pin24 when re-start was not possible or blinking 5 times happen many time.

# 10 Serviceman Mode (Electronic Controls)

These Receiver and Plasma Display have electronic technology using the I<sup>2</sup>C BUS Concept. It performs as a control function and it replaces many mechanical controls. Instead of adjusting mechanical controls individually, many of the control function are now performed by using "On Screen Display Menu". (The **Serviceman Adjustment Mode**.)

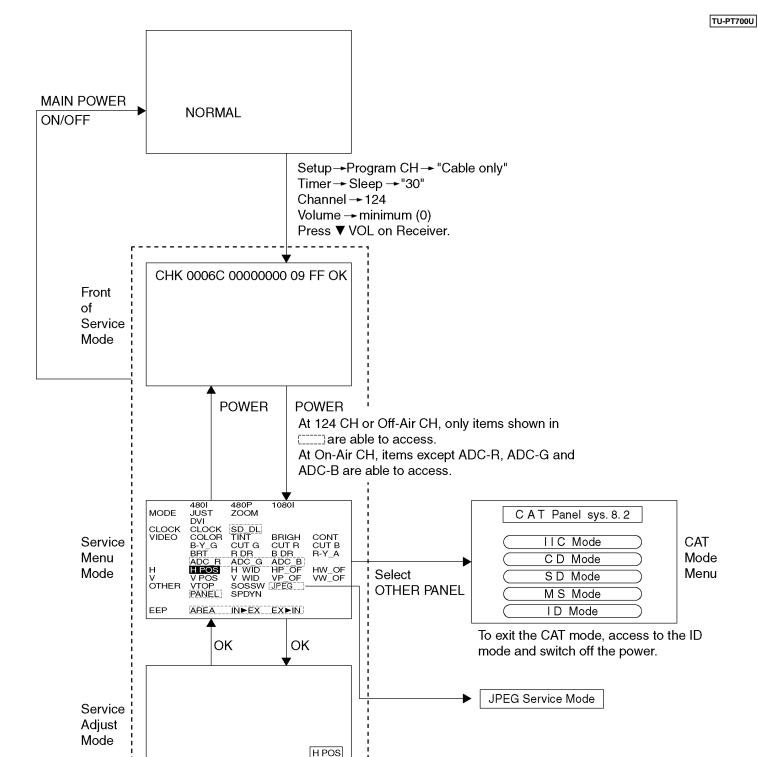
#### Note

It is suggested that the technician reads all the way through and understand the following the procedure for Entering/Exiting the **Serviceman Mode**; then proceed with the instructions working the Receiver. When becoming familiar with the procedure, the Flow Chart for Serviceman Mode may be used as a quick guide.

#### **Quick Entry to Serviceman Mode:**

At times when minor adjustments need to be done to the electronic controls, the method of Entering the serviceman Mode without removal of the cabinet back is as follows using the Remote Control:

- 1. Press the MENU button to display the Main menu, select SET-UP icon and then select the Program CH to set "Cable only" (Input Setup) mode.
- 2. Return to the Main menu, press MENU button twice and select TIMER icon, press OK to set SLEEP time for 30 Min with press the Vo1 .
- 3. Press MENU button twice to exit menus.
- 4. Tune to the Channel 124.
- 5. Adjust VOLUME to minimum (0).
- 6. Press the VOL dutton (decrease) on the Digital media receiver. Red "CHK" appears in upper corner.
- 7. Press the Power Button on the Remote Control to select one of six Serviceman Adjustment Modes.



#### **Exiting the Serviceman Mode:**

Press the Power button on the Receiver.

#### For Adjustments:

1. Press Channel Up/Down on the Remote Control to select one of the available Service Adjustments and press the OK button.

### Note:

Write Down the original value set for each address before modifying anything. It is easy to erroneously adjust the wrong item.

2. Press Volume Up/Down on the Remote Control to adjust the level of the selected Service Adjustment.

15 24

01

NA A I N	CUD ITEM	LODICINIAL	LEEDDOM	ADDECC	IDEEALUT	]
MAIN ITEM	SUB ITEM	VALUE	EEPROM		DEFAULT LEVEL	
			SLEEVE	SUB		
VIDEO	COLOR	00	16		1E	
	TINT	00	17		07	
	BRIGH	00	1E	09	90	
	CONT	00	22	02	47	
	B-Y-G	00	18		27	
	CUT G	00	26	01	A0	
	CUT R	00	2C	01	80	
	CUT B	00	2F	01	80	
	BRT	00	A5	09	90	
	R DR	00	44		89	
	B DR	00	45		87	
	R-Y-A	00	19		00	
	ADC_R	00	B3		68	
	ADC_G	00	B4		69	
	ADC_B	00	B5		73	
Н	H POS	15	1C		E2	
	H WID	15	1B		25	
	HP OF	15	5D		00	
	HW OF	15	5C		00	
V	V POS	15	1E		F2	
	V WID	15	1D		25	
	VP OF	15	5F		00	
	VW OF	15	5E		00	
OTHER	VTOP	00	A3		AE	
	sossw	01	97		01	
	JPEG					→ JPEG Service Mo
	SPDYN	15	86		00	
EEP	AREA	15	9C		ALL	
**	IN ▶ EX	15	9D		<u> </u>	
	EX IN	15	9E			

# JPEG Service Mode

JPEG Factory and Service Mode	
1 Auto Test (2-5)	Runs test item 2 –5 automatically
2 SDRAM Test	Tests SDRAM (IC6514)
3 Color Bar Test	Displays Color Bar
4 SD Card Test	Checks SD card
5 PC Card Test	Checks PC card
6 Download	Photo Viewer firmware download

# Note:

To exit from JPEG Service mode, press "EXIT" or power button on remote control.

# 11 CAT (Computer Aided Test) mode

## CAT mode menu

CAT Panel sys8.2				
		Mode	Function	Access button
IIC Mode	<b>▼</b>	· IIC	Service Alignment	OK
CD Mode	<b>◄</b>	<ul> <li>CD(Complete</li> </ul>	Software version	Mute
		Diagnostics)	information EEPROM edit	more than 5 seconds
SD Mode	<b>◆</b> …	<ul> <li>SD(Status</li> </ul>	MTBF parameter	OK
		Display)		
MS Mode	<b>◆</b> …	<ul> <li>MS Mode</li> </ul>	Not use	
ID Mode	<b>◆</b> …	· ID	Not use	

#### How to access the CAT mode.

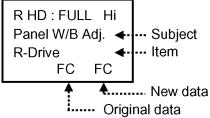
- 1. Enter to the Service Menu mode.
- 2. Select the OTHER (PANEL).
- Press the OK button on the remote control. (Press the MENU button on the remote control to enter to the PC MENU mode.)

To exit the CAT mode, access the ID mode and switch off the main power on the Digital media receiver.

# 11.1. IIC mode

Select the IIC mode by **Up/Down button** (channel) on the remote control at the front page of CAT mode then press the **OK button** on the remote control.

# <u>OSD</u>



## How to use the IIC mode.

- Select the alignment Subject by 1 / 2
   buttons on the remote control.
   ("Panel W/B Adj.", "Aging", "Pos./Size", "Sub adjust", "Chroma Control")
- 2. Select the alignment **Item** by **3 / 4** on the remote control.
- 3. Adjust optimum setting by Volume Up/Down buttons on the remote control.
- 4. The **data** is **memorized** when press the **EXIT button** on the remote control or change the alignment Subject (or Items).

"IIC mode structure".

To exit the IIC mode, press the EXIT or MENU button on the remote control.

# 11.2. CD mode

Select the CD mode by **Up/Down button (Channel)** on the remote control at the front page of CAT mode then press the **Mute button** on the remote control more than 5 sec.

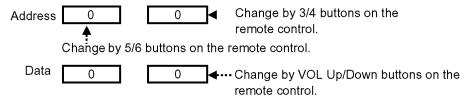
# MiCom Software version. Memory data version D Memory data version H Memory data change Address Data 1 Memory data New data

Original data

Micom software version (IC3801 on the DG-Board of the receiver), this version can be upgrade by

- 1. replace of new version IC
- 2. Loading the new version software from loader tool, TZSC07036.

Memory data change

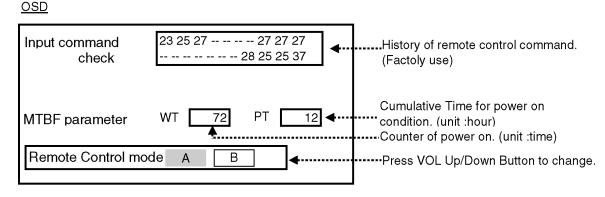


The data is memorized when switch off the main power.

To exit the CD mode, press the EXIT button on the remote control.

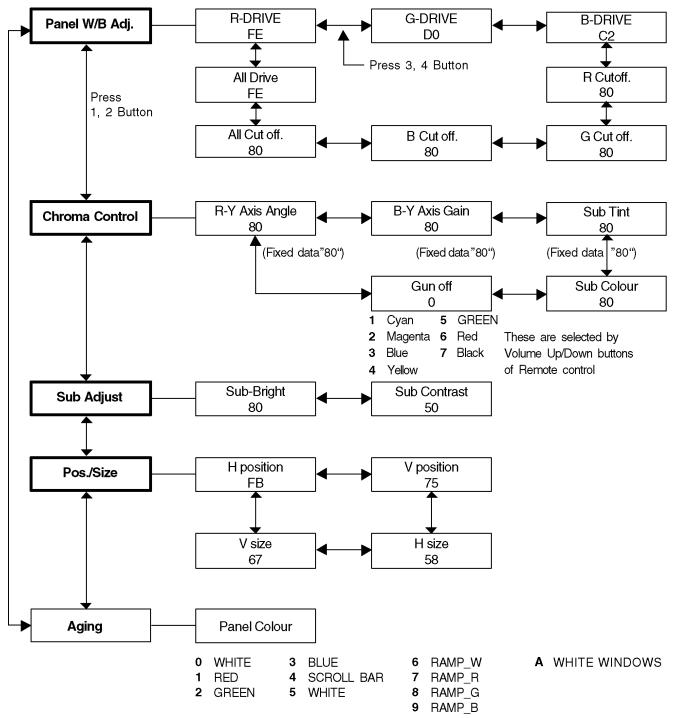
# 11.3. SD mode

Select the SD mode by Up/Down (channel) button on the remote control at the front page of CAT mode then press the OK button on the remote control.



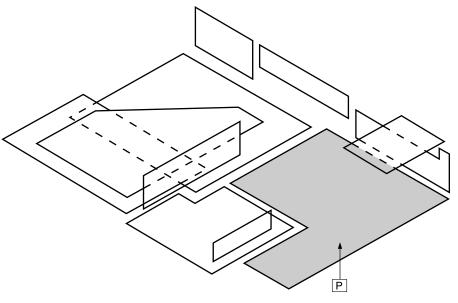
To exit the SD mode, press the **EXIT button** on the remote control.

# 11.4. IIC mode structure (following items value is sample data.)



These are selected by OK button of Remote control and press MENU button to exit.

TU-PT700U

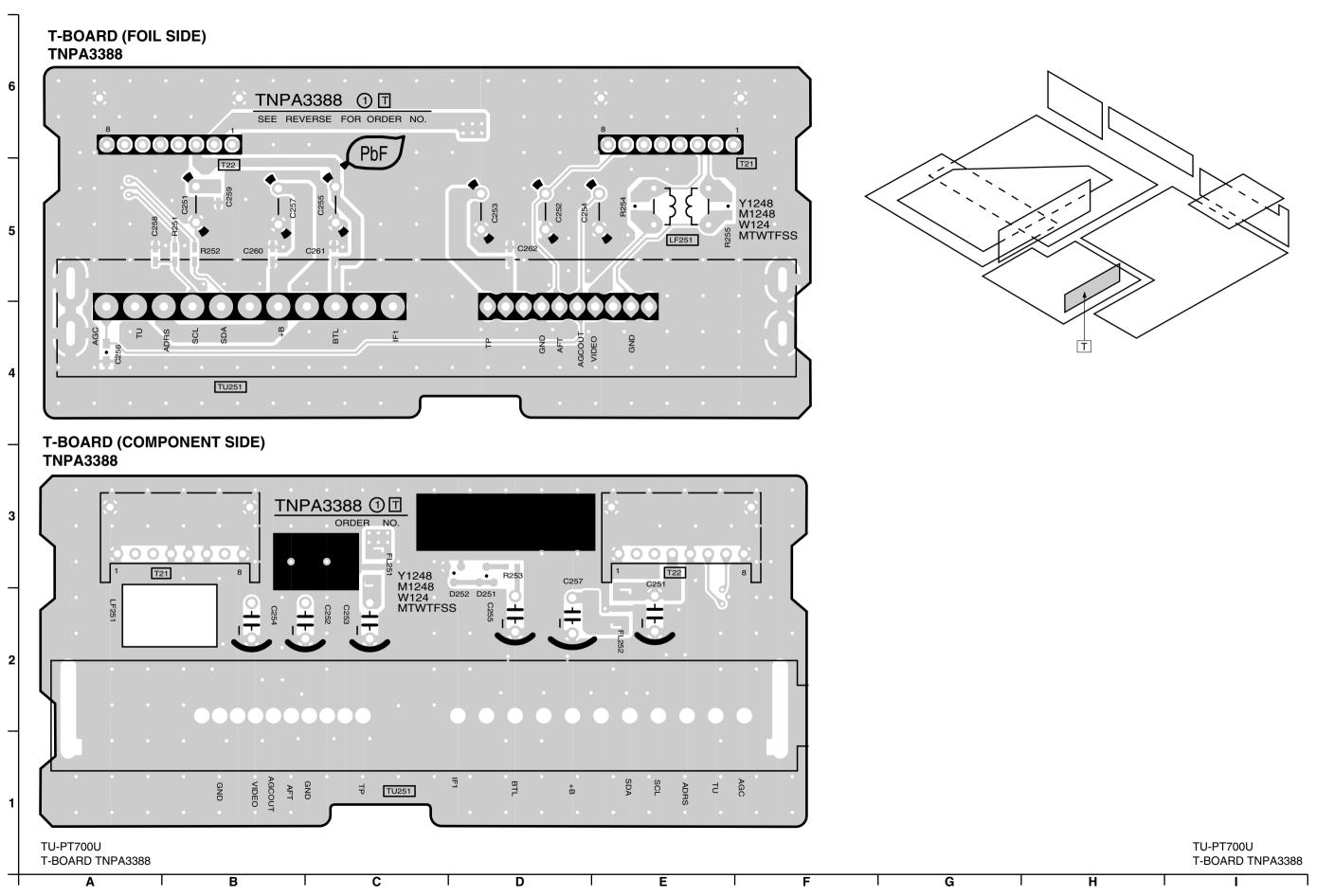


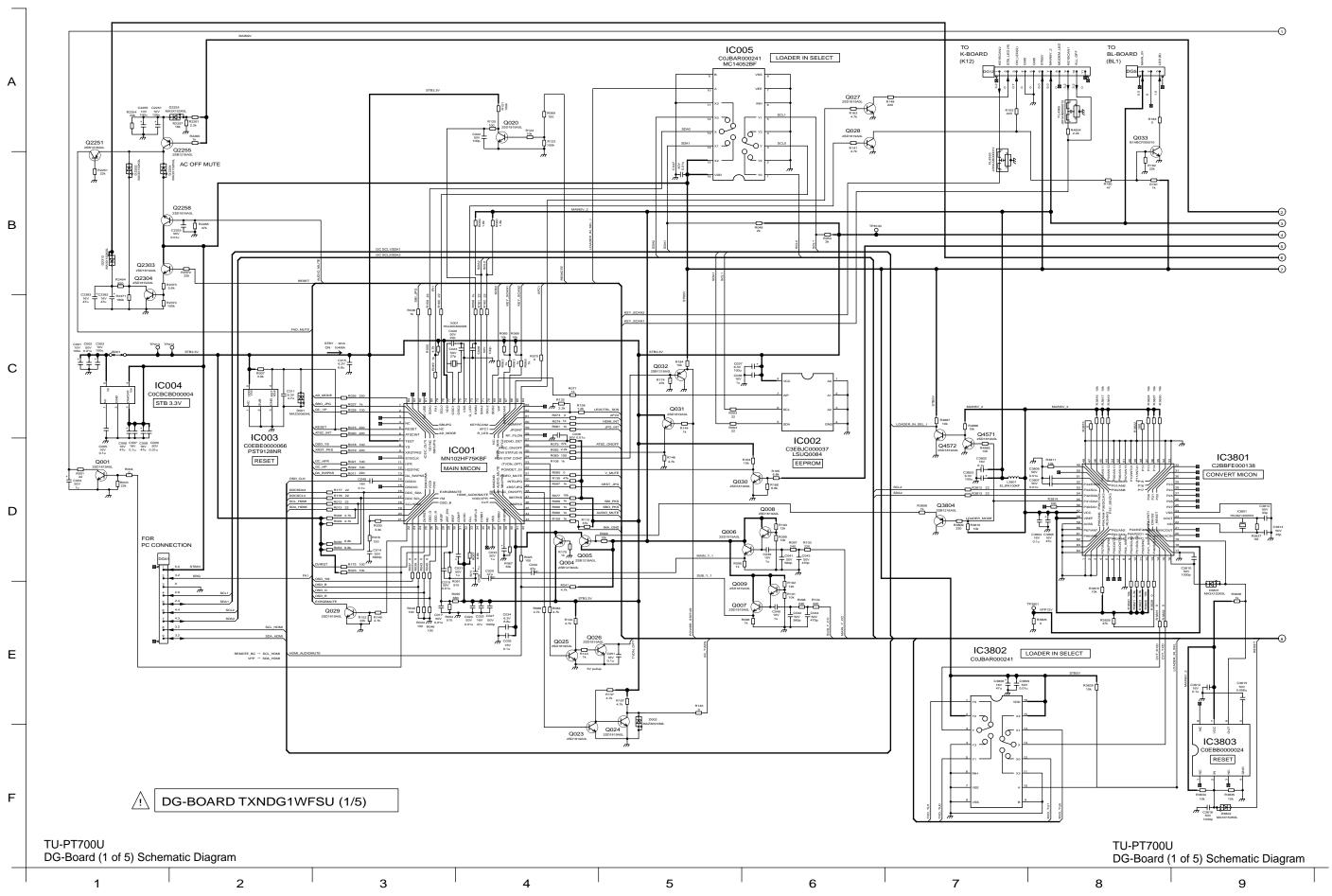
# **Parts Location**

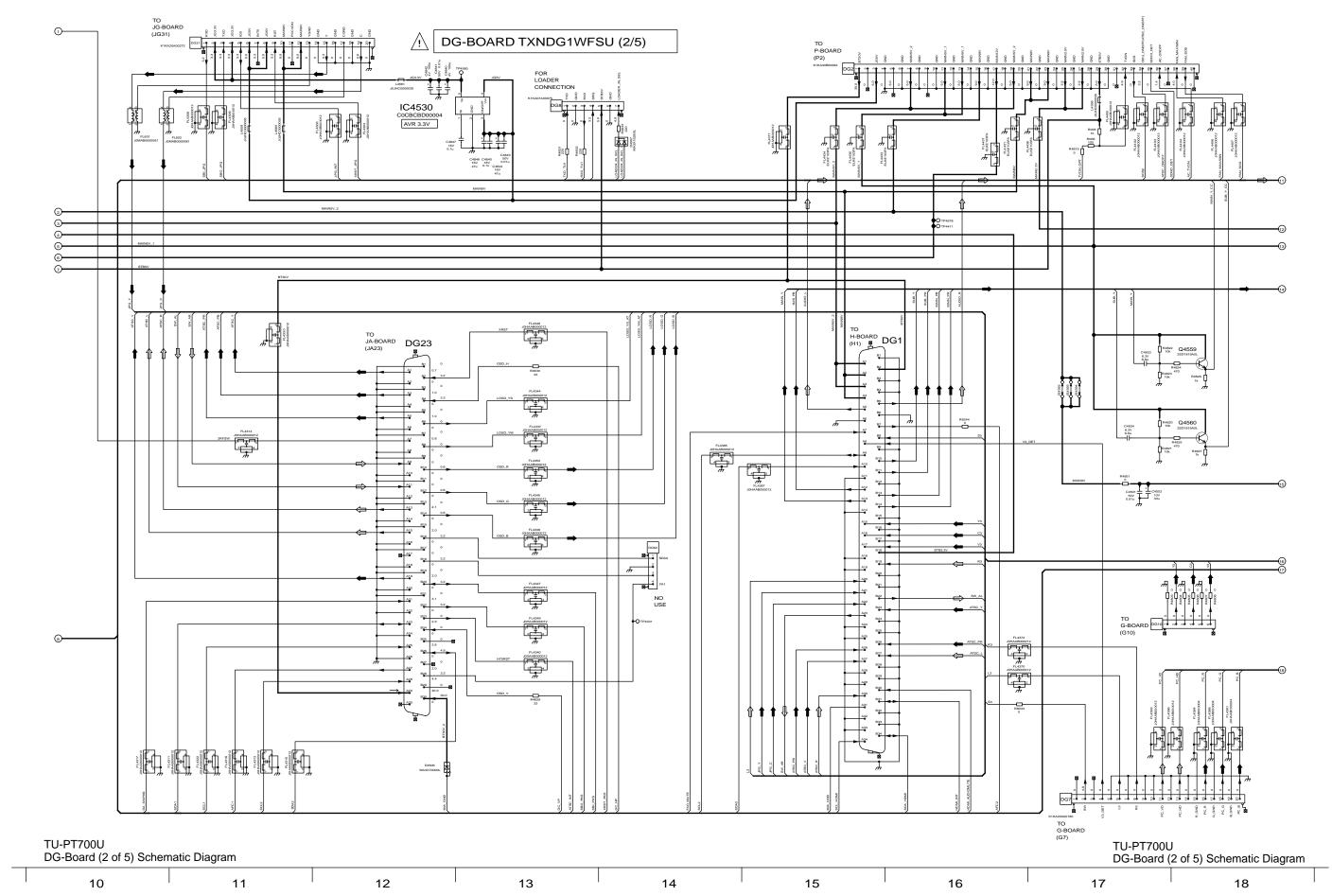
P-BOARD (FOIL SIDE)						
IC	С		TP			
IC401	E-2	TP003	F-2			
IC408	D-2	TP004	B-2			
IC920	E-3	TP005	B-6			
IC921	D-4	TP901	E-3			
IC970	D-4	TP904	F-2			
TRANSISTOR		TP977	B-3			
	-	TP978	C-3			
Q405	E-2	TP979	C-3			
Q406	E-2 F-4	TPB7501	B-5			
Q990		TPB7502	C-5			
Q7503	F-5	TPB7503	C-5			
		TPB7504	C-6			
		TPB7505	B-5			
		TPB7506	C-5			
		TPB7507	F-5			
		TPB7508	B-5			
		TPB7511	B-4			
		TPB7515	D-5			
		TPB7516	C-6			
		TPB7517	D-6			
		TPB7518	D-5			
		TPB7519	F-5			
		TPB7520	C-6			
		TPB7523	C-6			

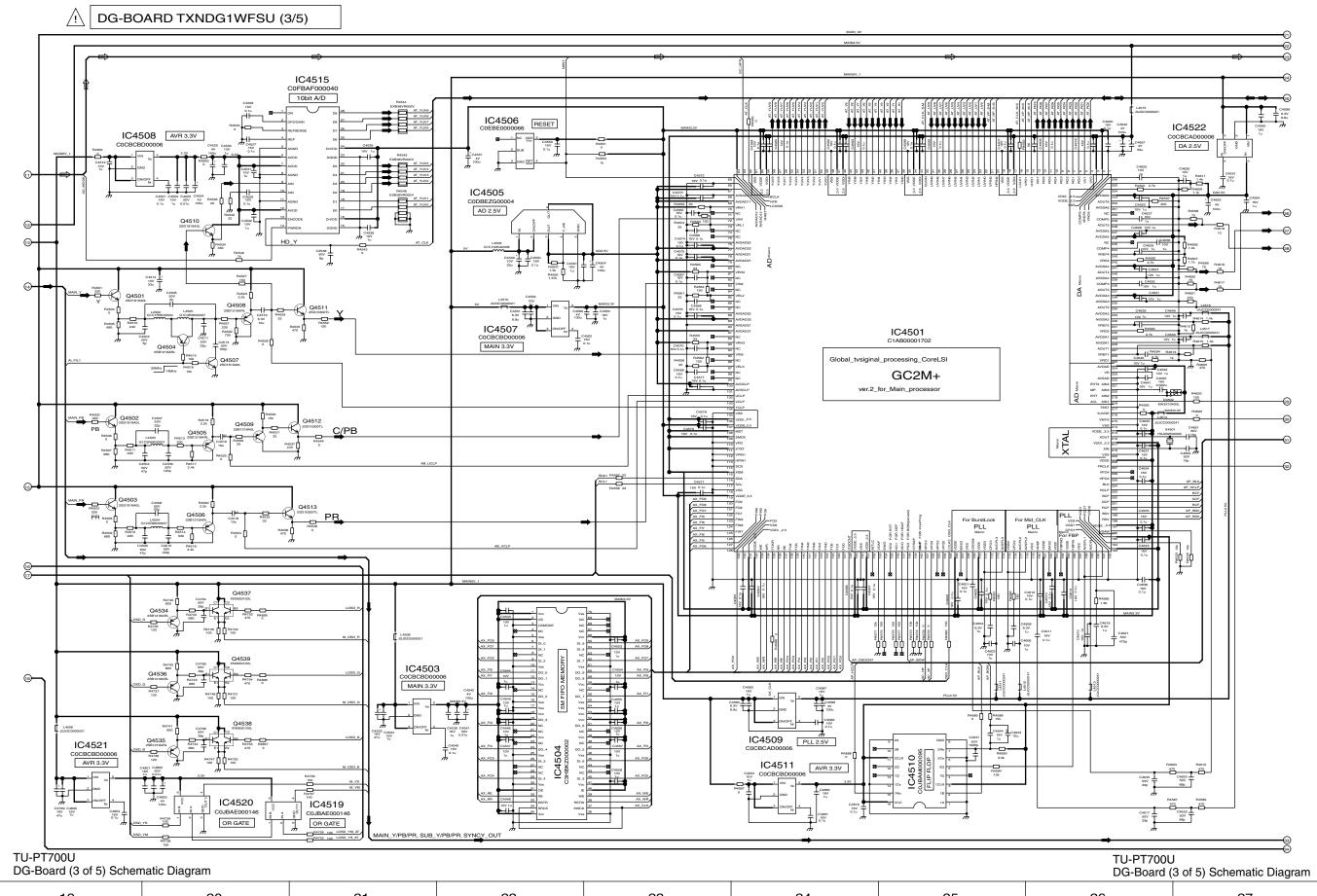
# **Parts Location**

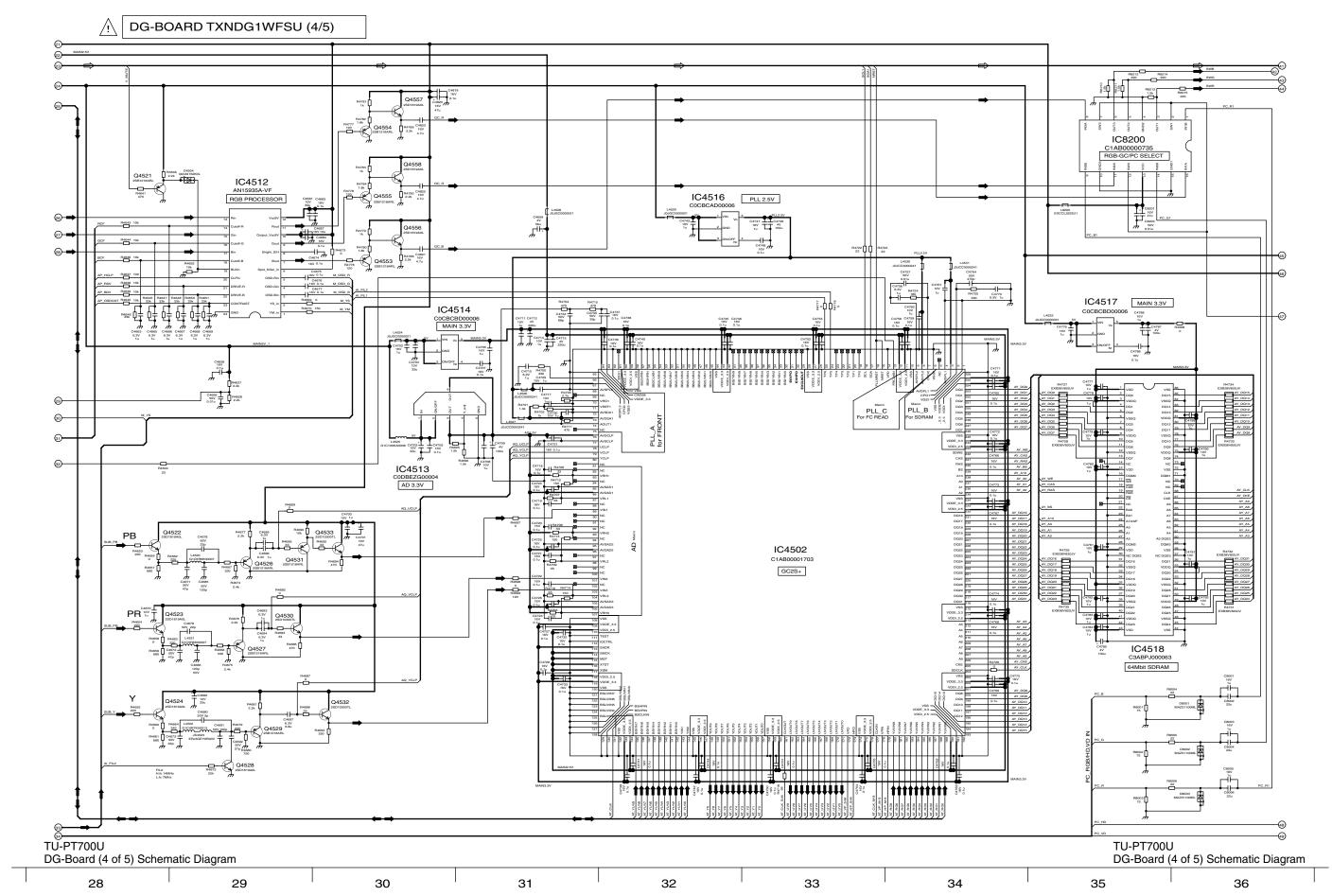
P-BOARD (COMPONENT SIDE)							
IC		TRANSISTOR		TP			
IC401	E-2	Q404	H-4	TPB7509	G-6		
IC402	G-2	Q971	F-4	TPB7512	F-5		
IC403	H-2	Q972	F-4	TPB7525	F-6		
IC404	H-2	Q973	F-4	TPB7530	G-5		
IC408	F-2	Q7501	G-5	TPB7551	H-6		
IC920	D-3	Q7502	G-5	TPB7552	F-5		
IC921	F-4	Q7504	H-4	TPB7553	H-5		
IC7501	H-4	Q7506	F-4	TPB7554	H-6		
IC7502	G-4	Q7507	F-4				
IC7503	F-5	Q7508	H-4				
IC7504	E-5	Q7509	F-5				
IC7505	E-5	Q7510	F-6				
IC7506	G-2	Q7540	H-6				
IC7507	H-3	Q7541	H-5				
IC7508	D-5	Q7542	G-6				
IC7581	G-5	Q7543	H-4				
		Q7544	H-5				
		Q7582	G-6				
		Q7583	I-5				
		Q7584	H-5				
		Q7585	F-5				
		Q7586	H-4				

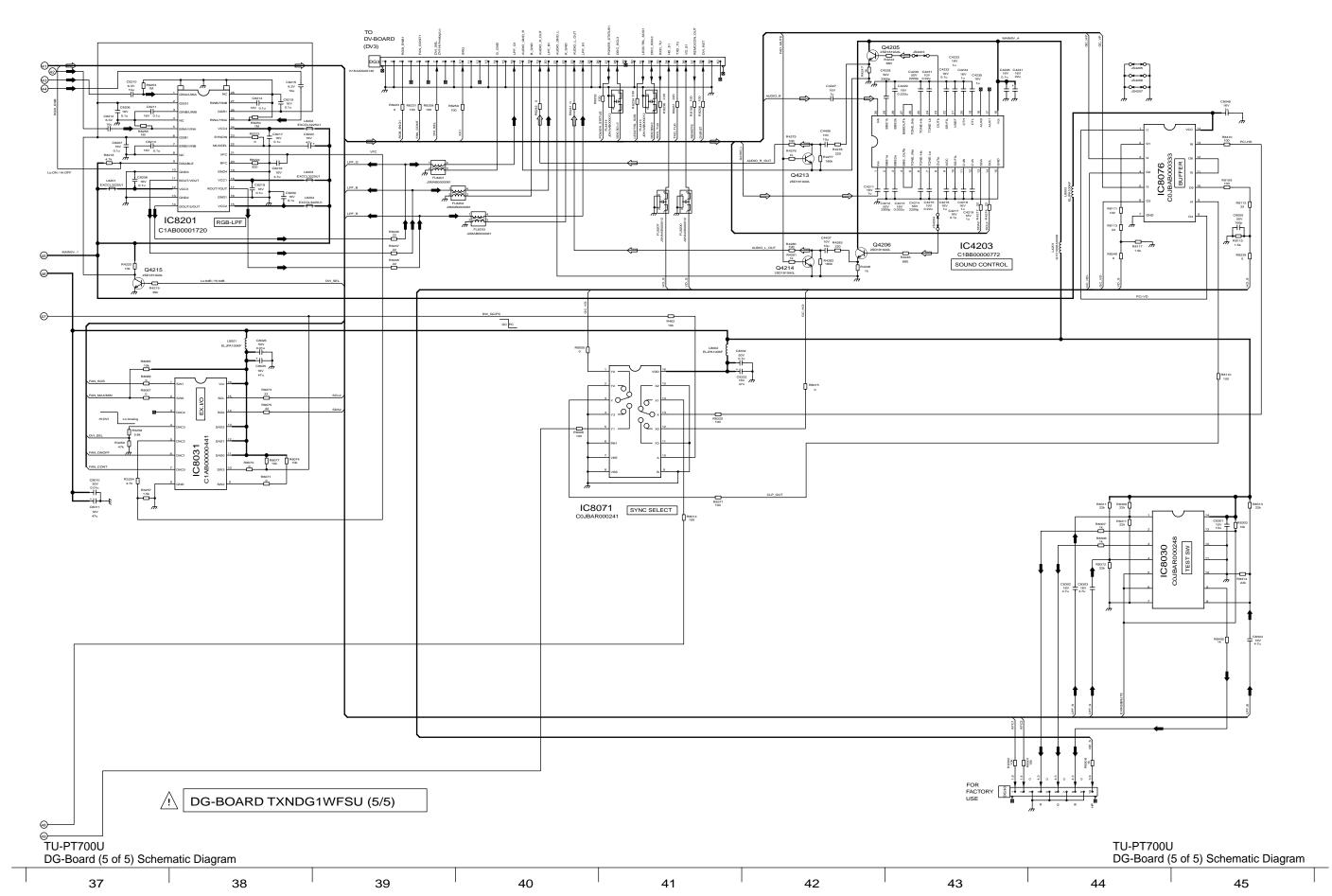


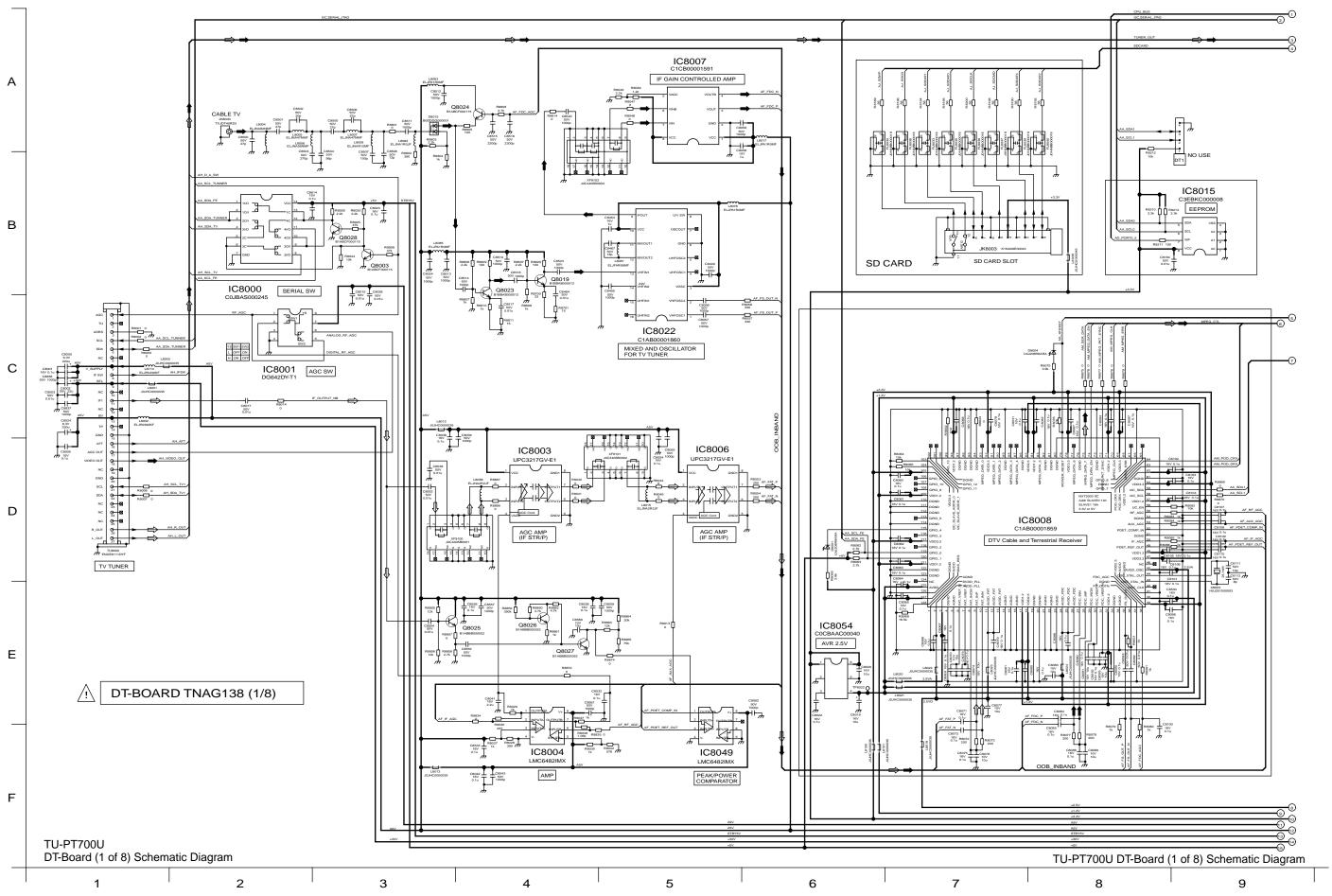


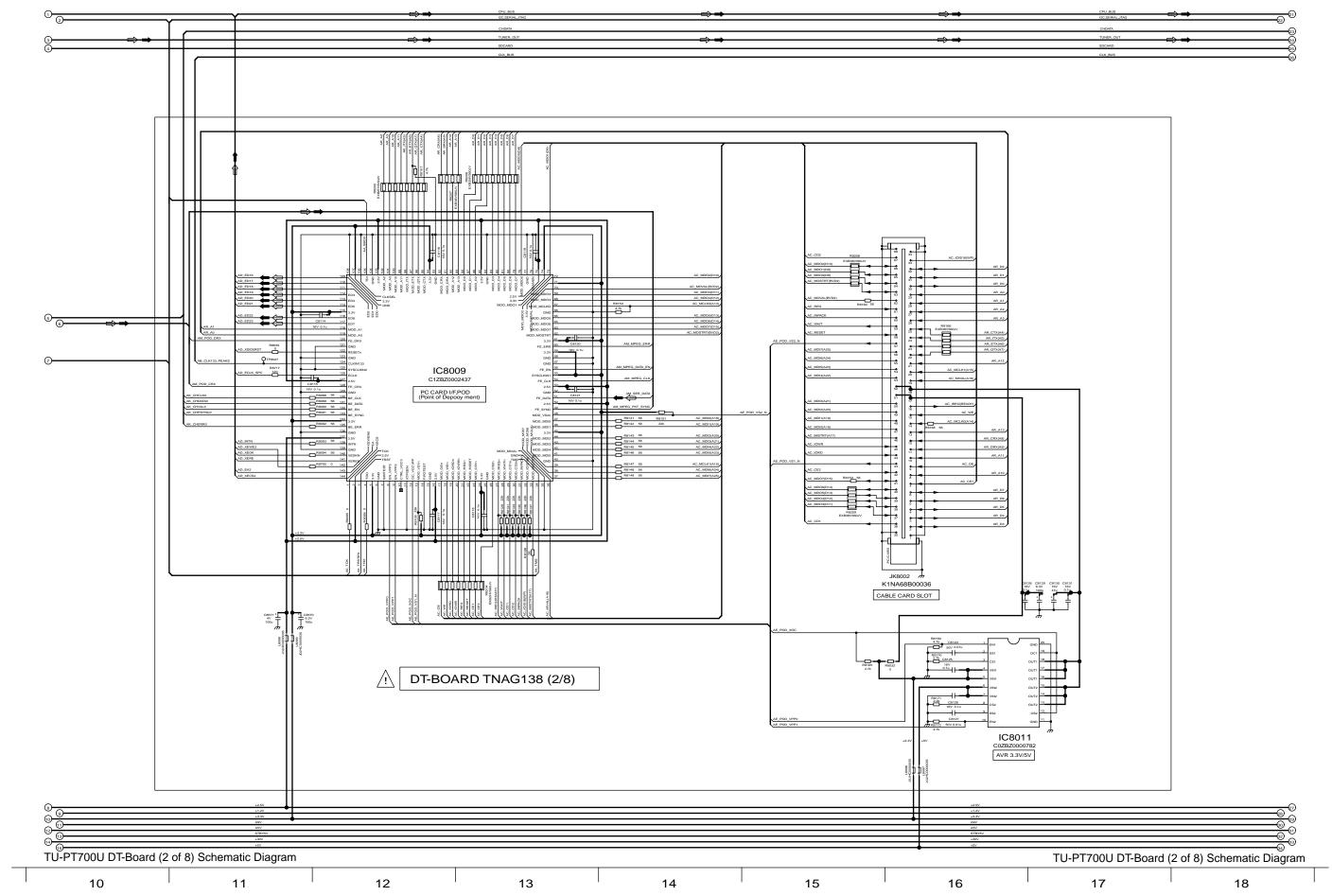


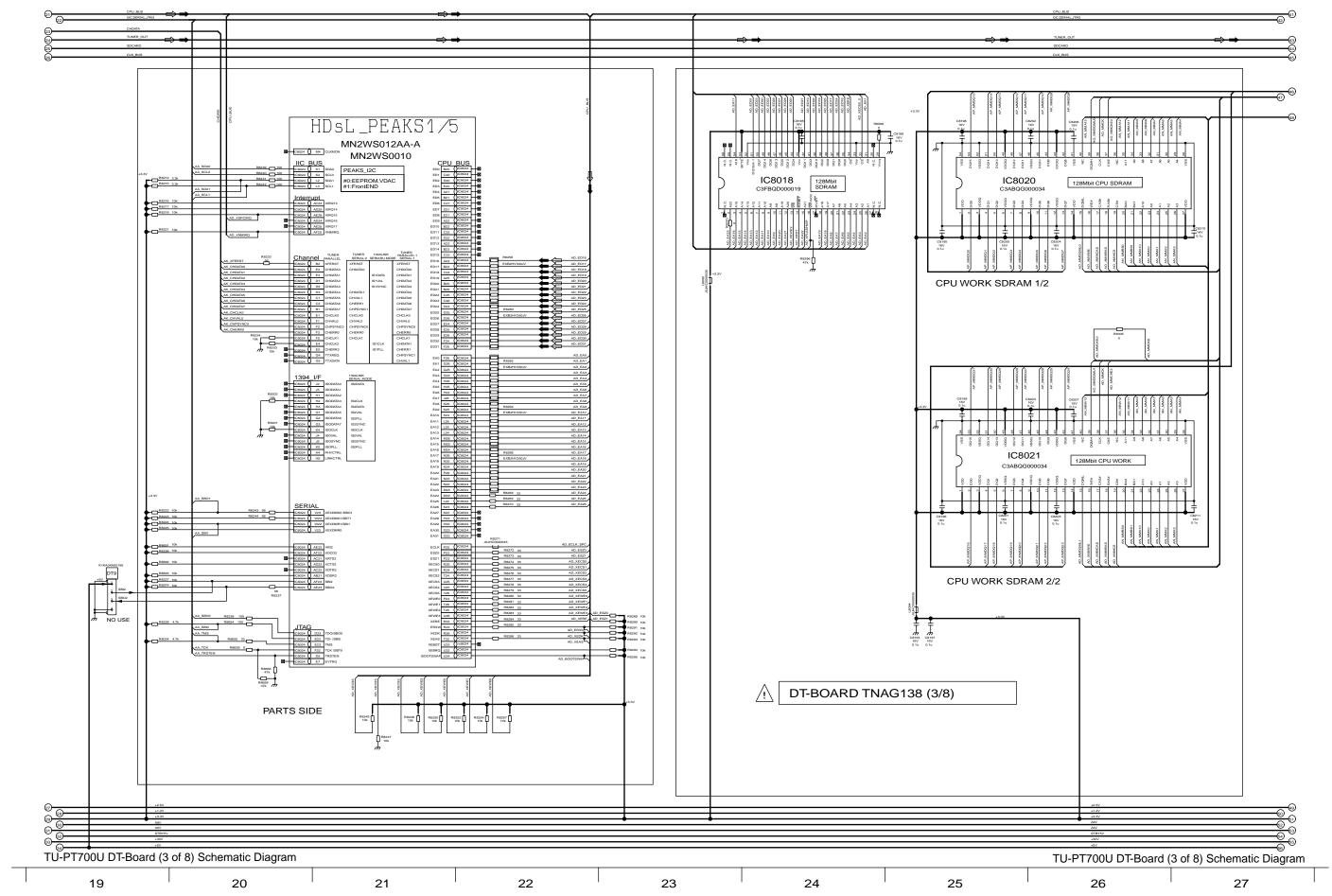


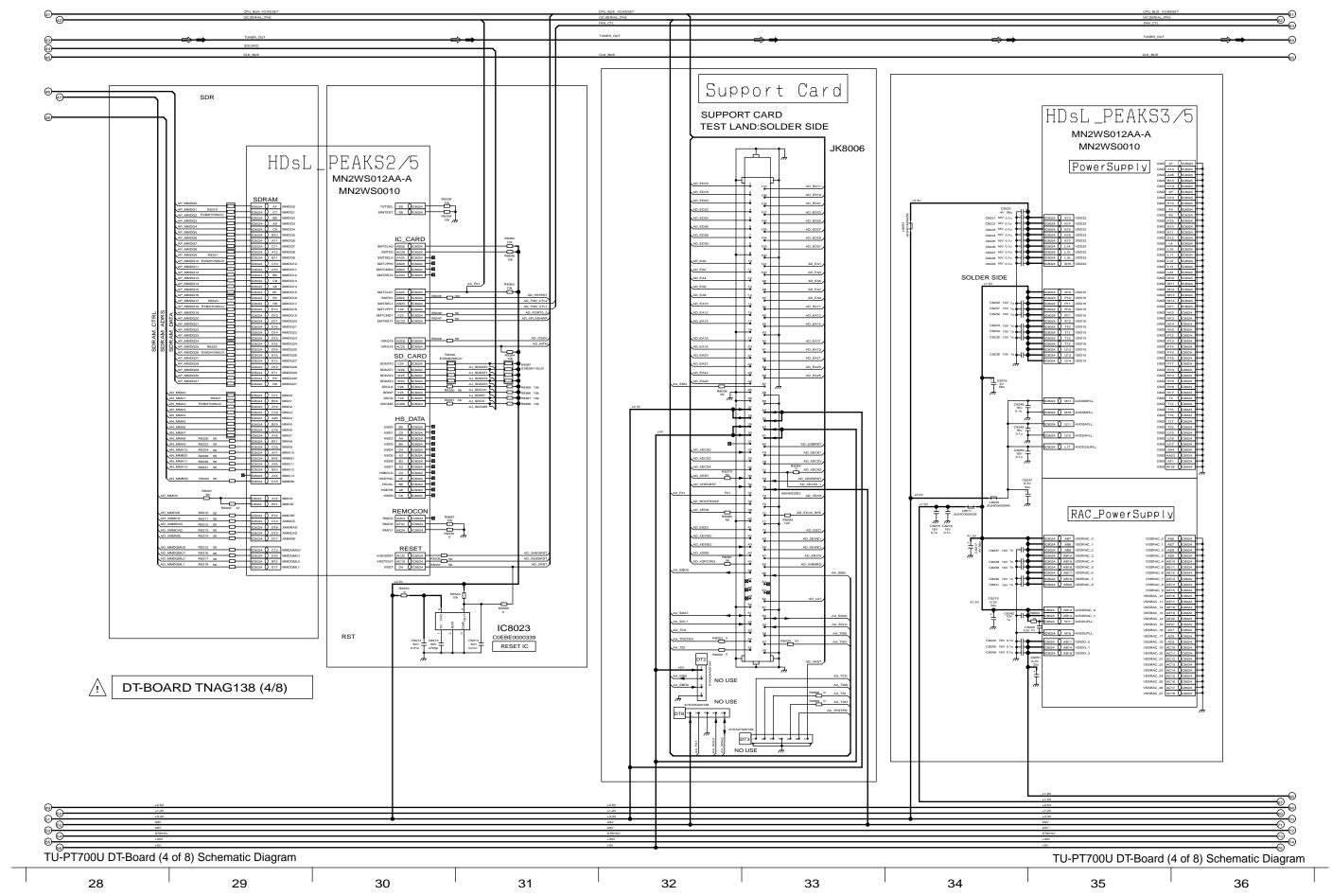


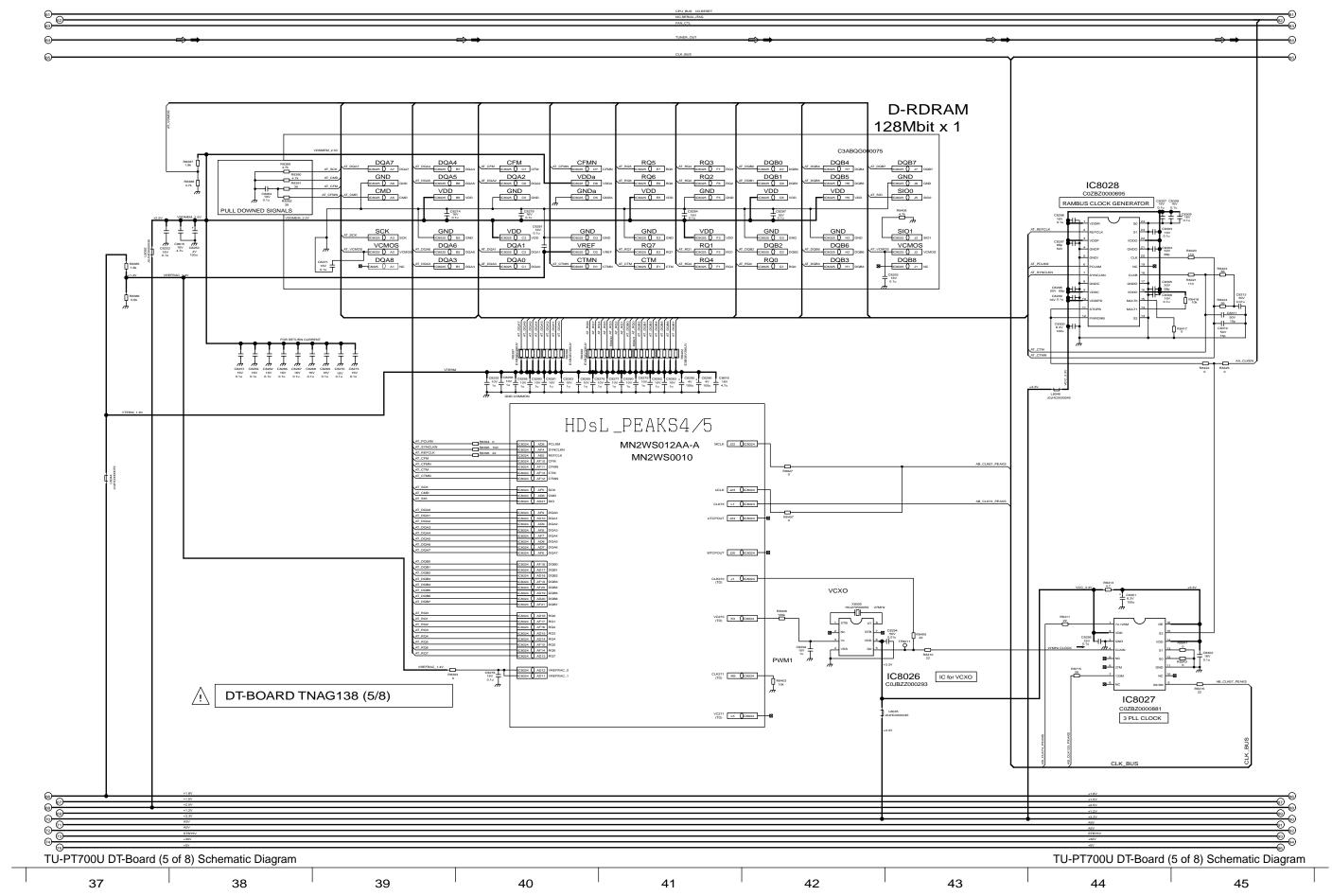


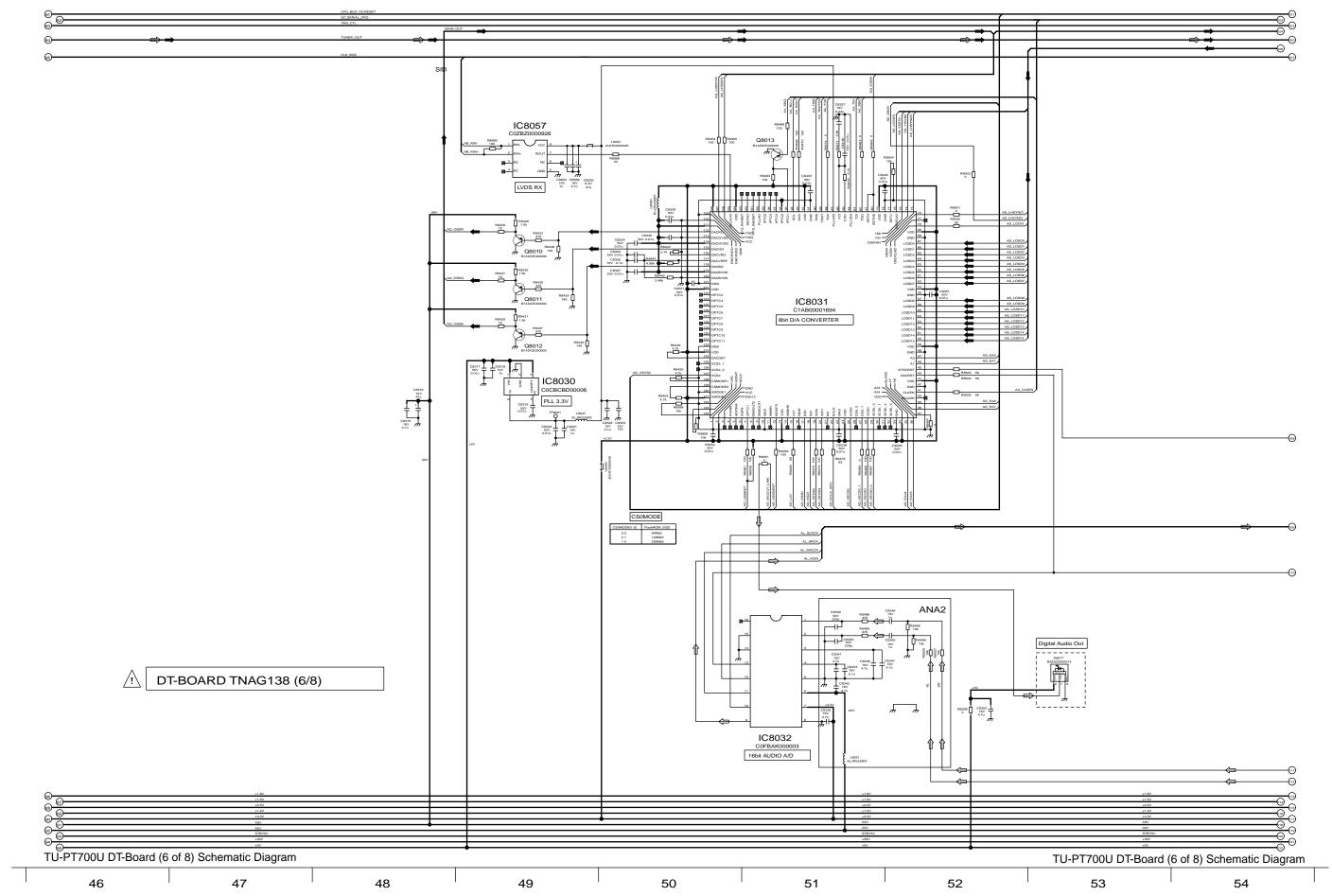


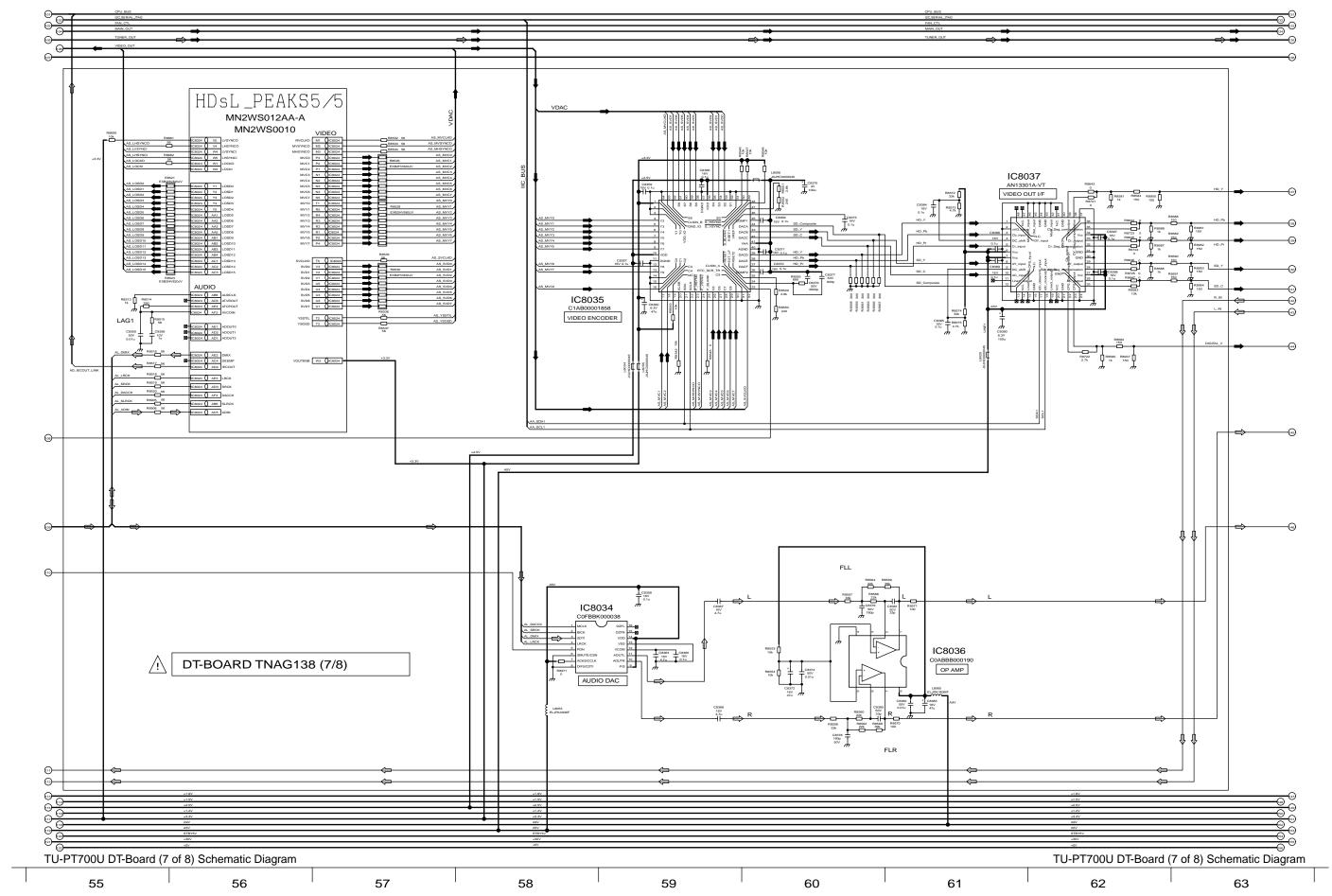


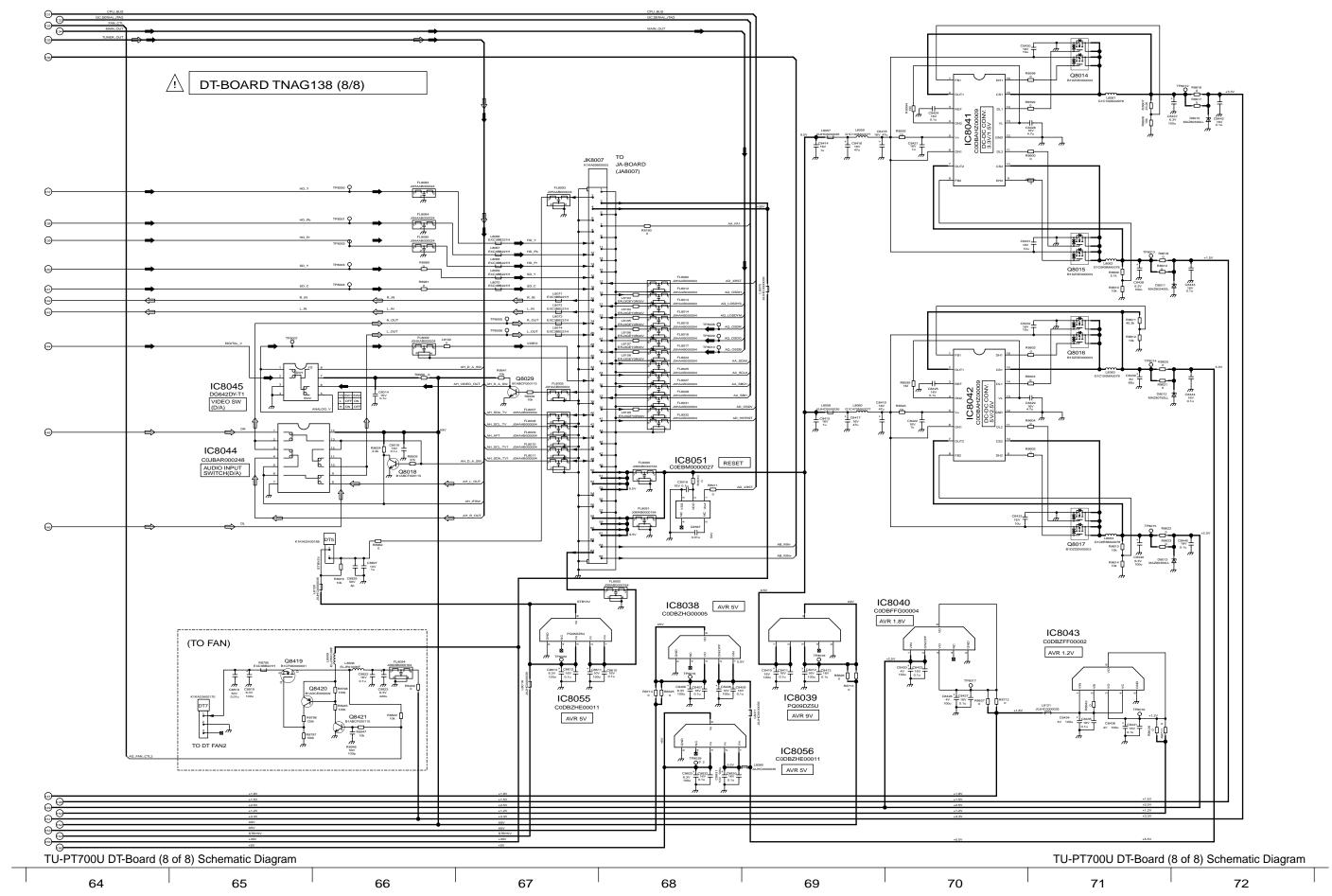


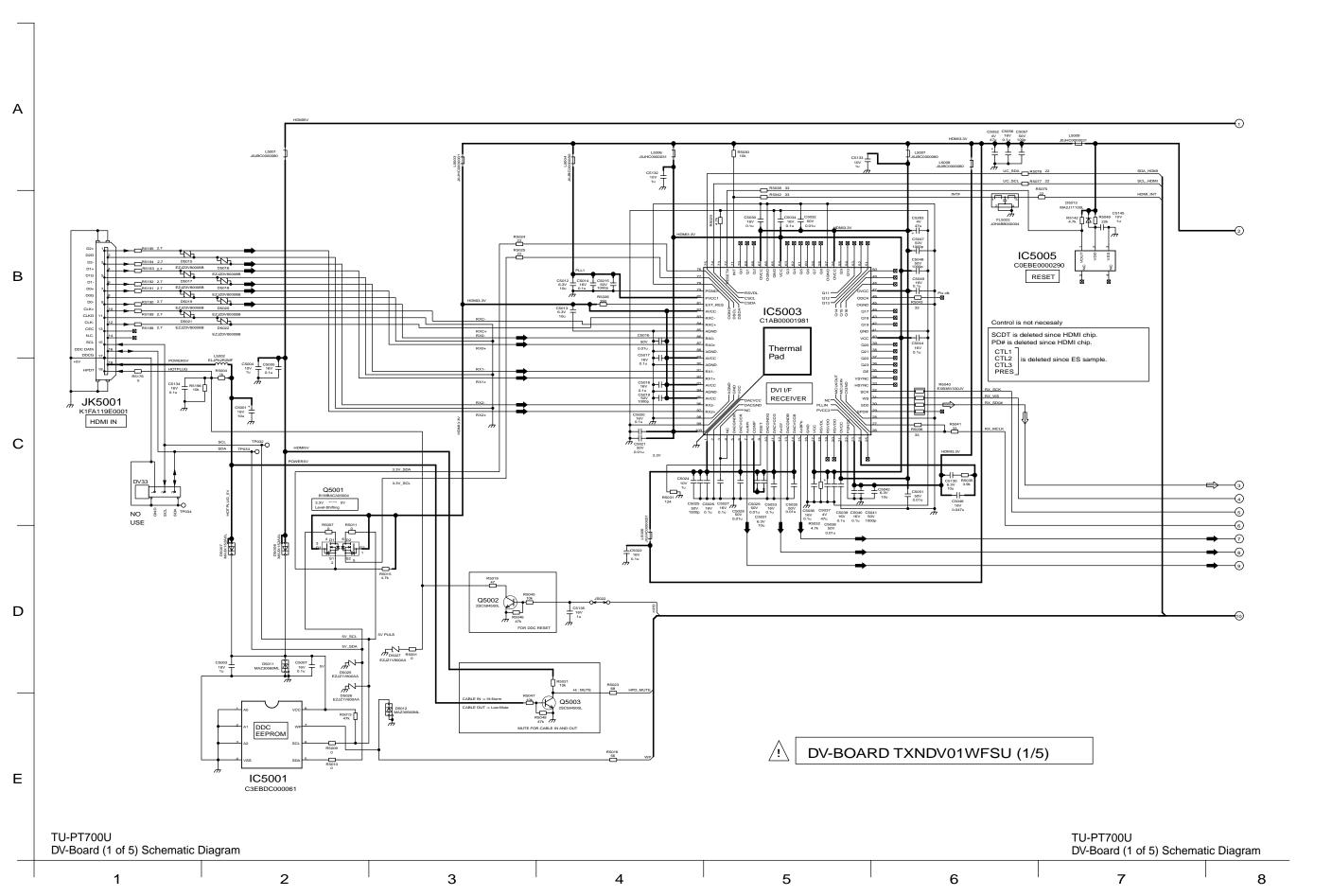


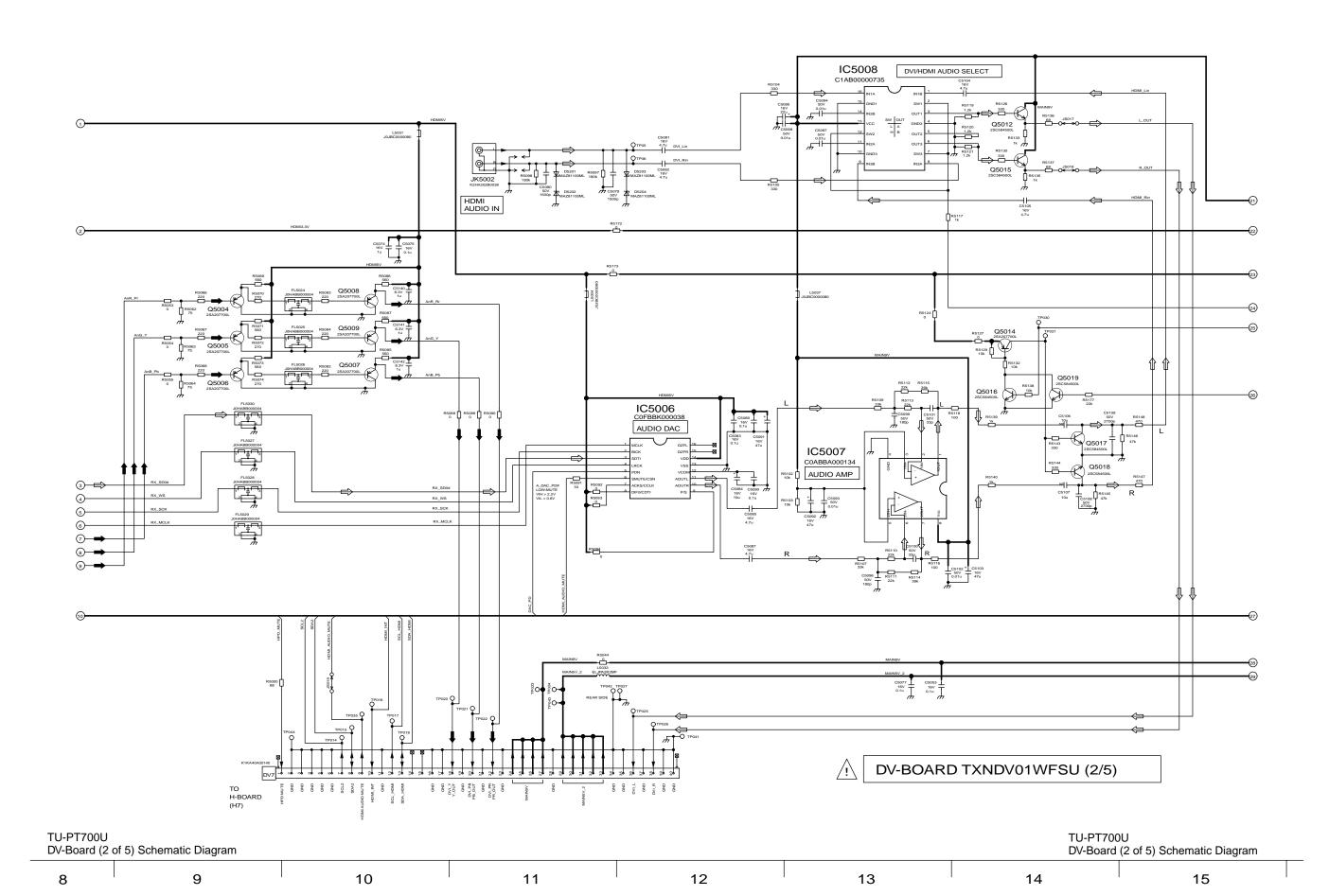


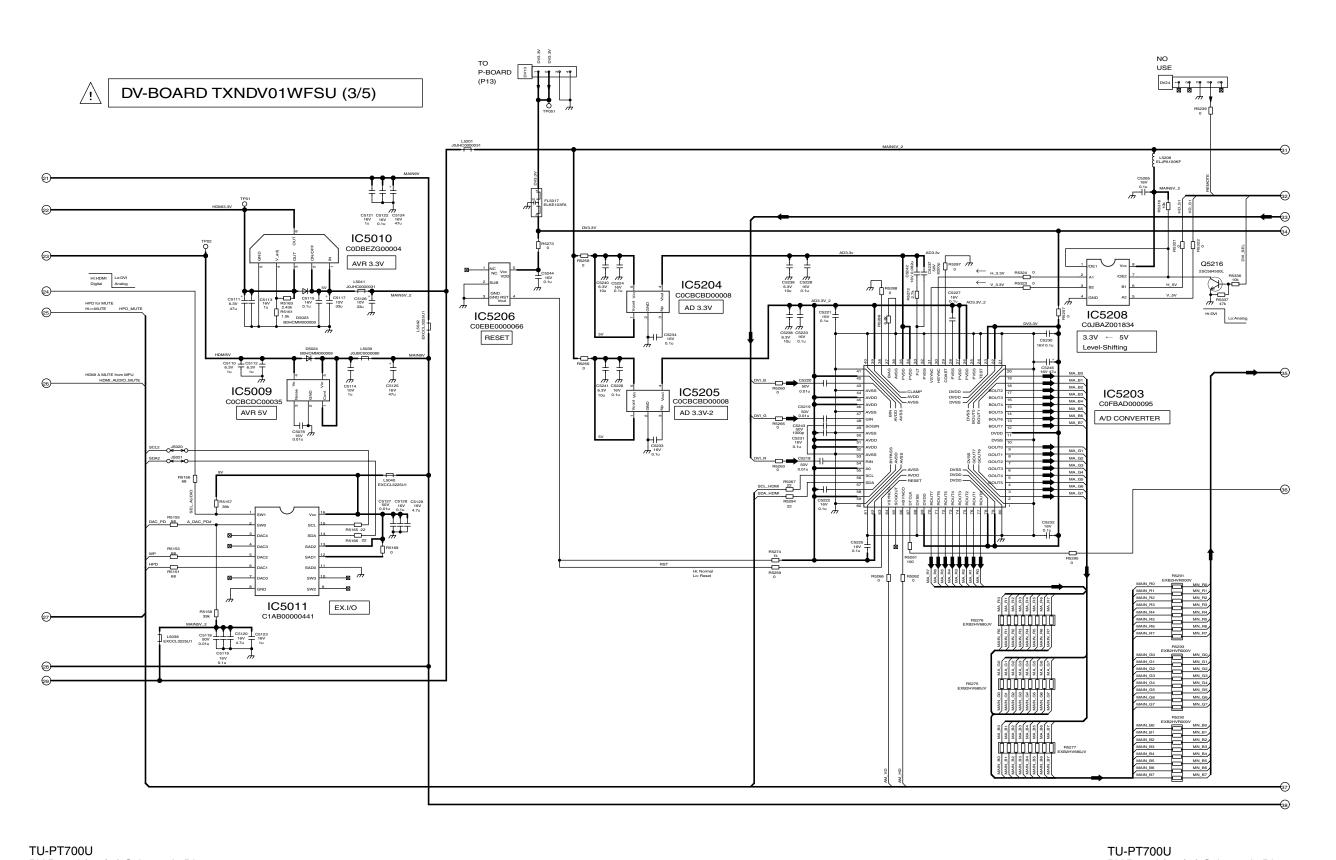








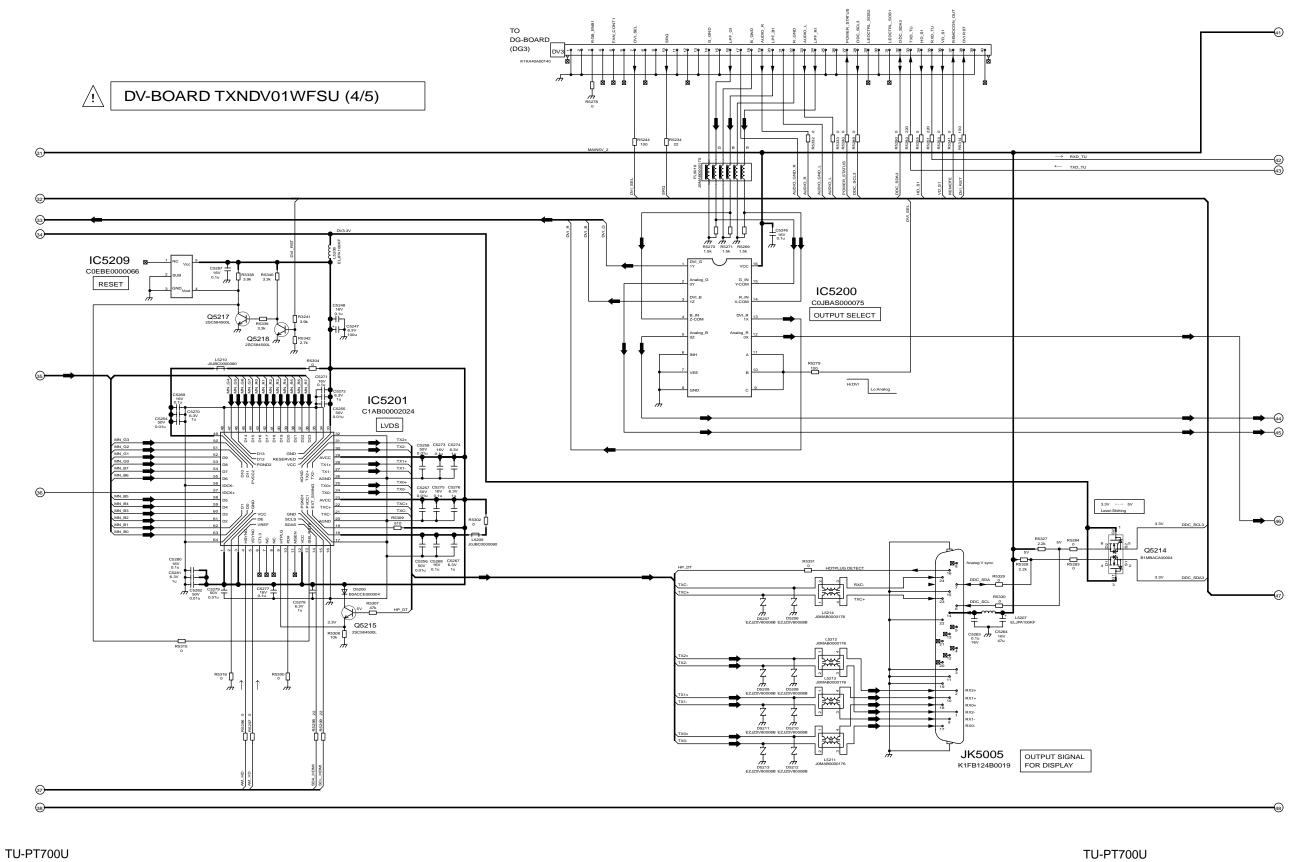




 DV-Board (3 of 5) Schematic Diagram

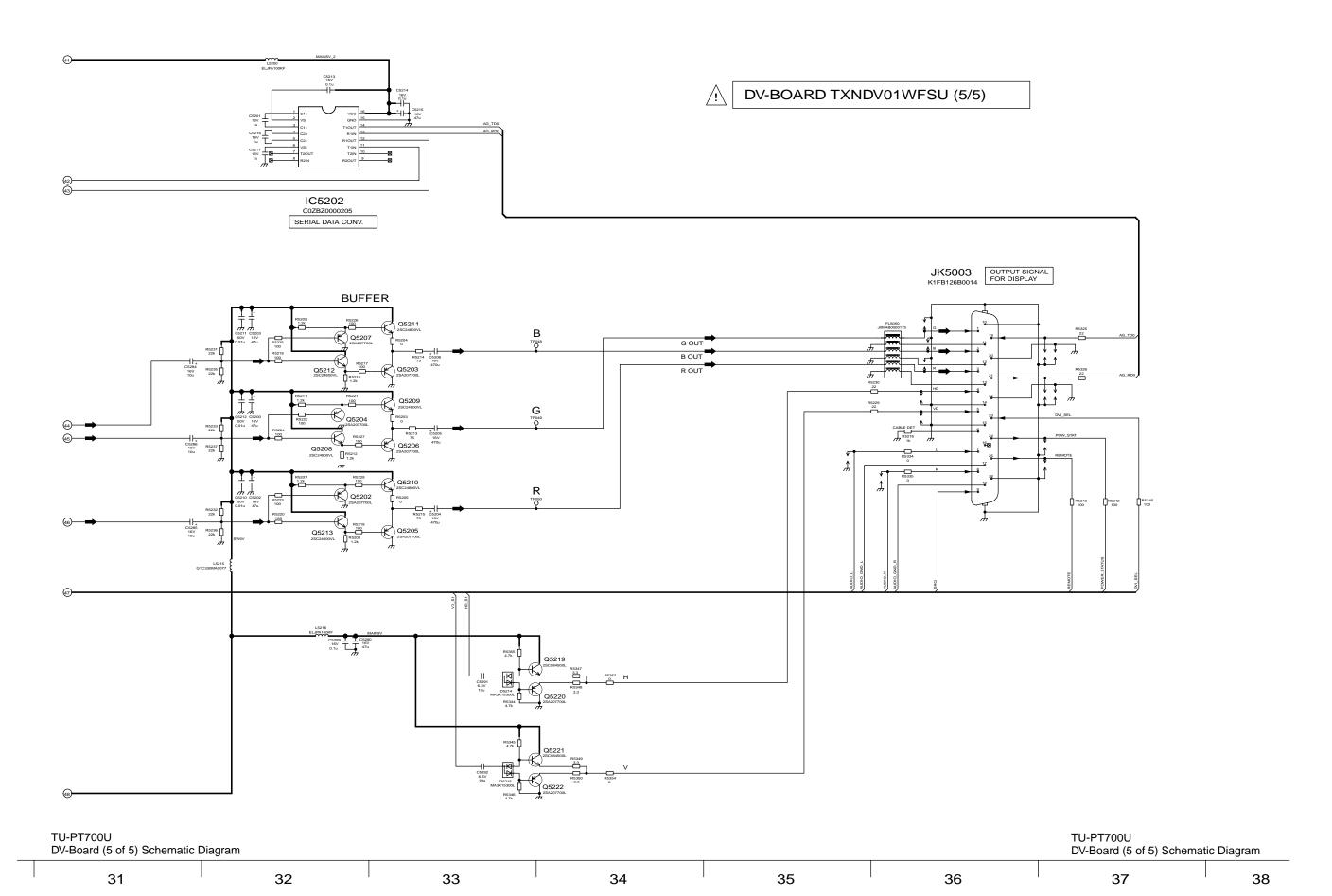
 DV-Board (3 of 5) Schematic Diagram

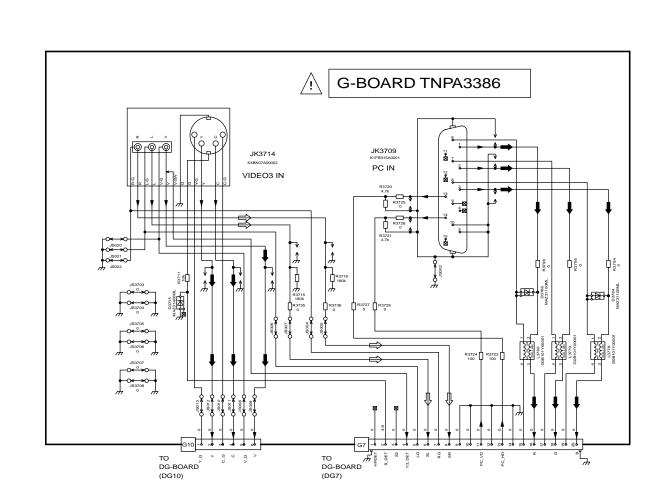
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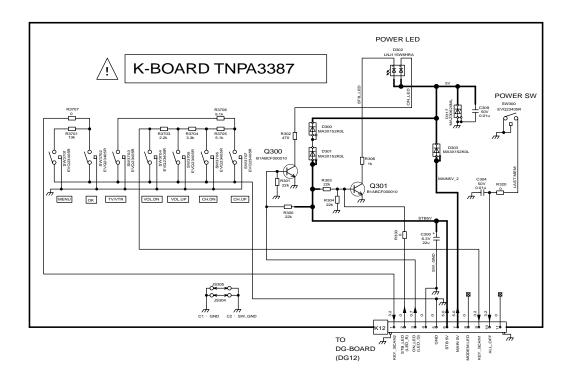


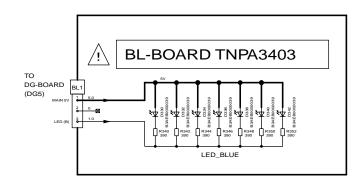
10-P17000 DV-Board (4 of 5) Schematic Diagram

23 24 25 26 27 28 29 30









TU-PT700U G,K and BL-Board Schematic Diagram

Α

В

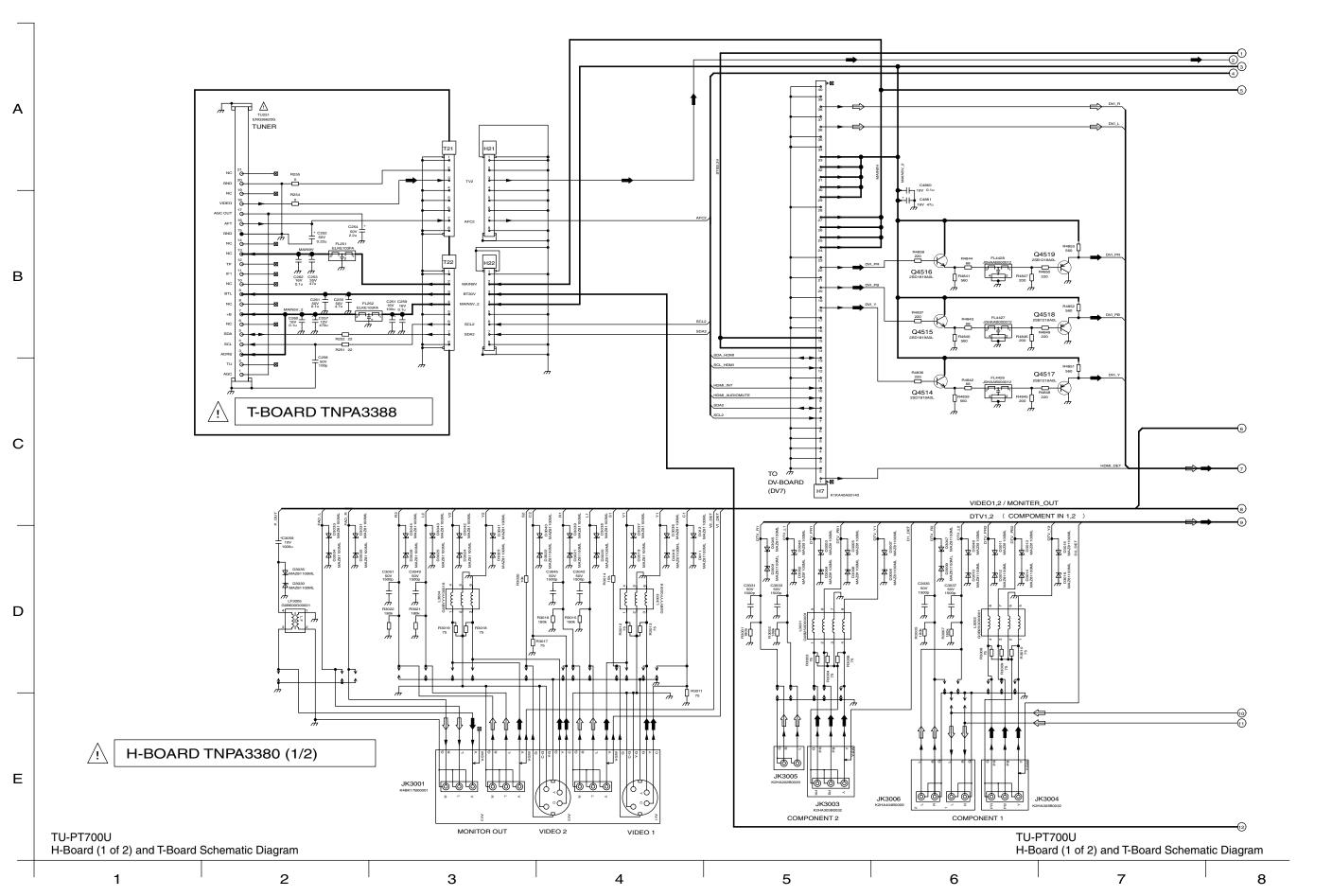
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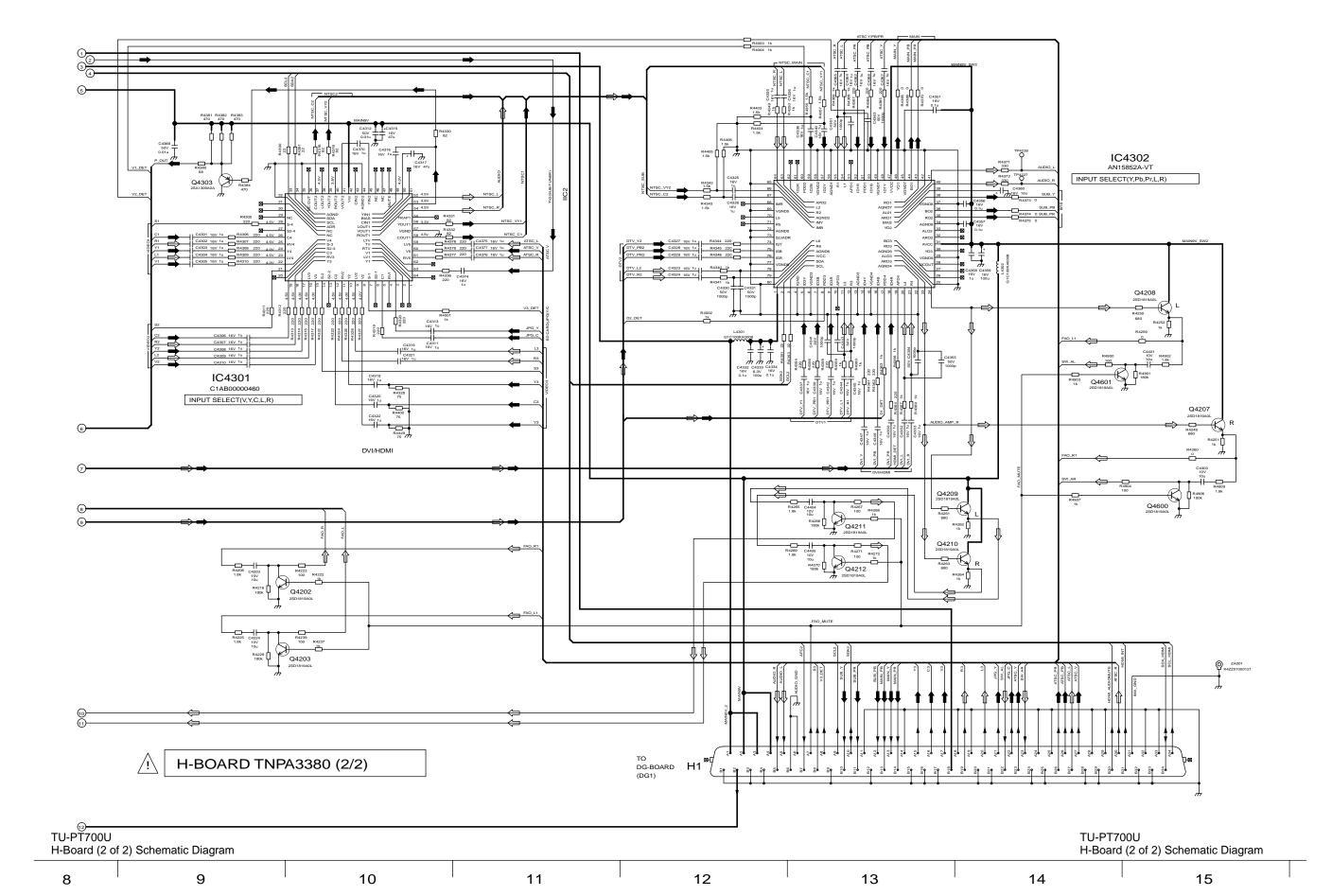
D

Ε

TU-PT700U G,K and BL-Board Schematic Diagram

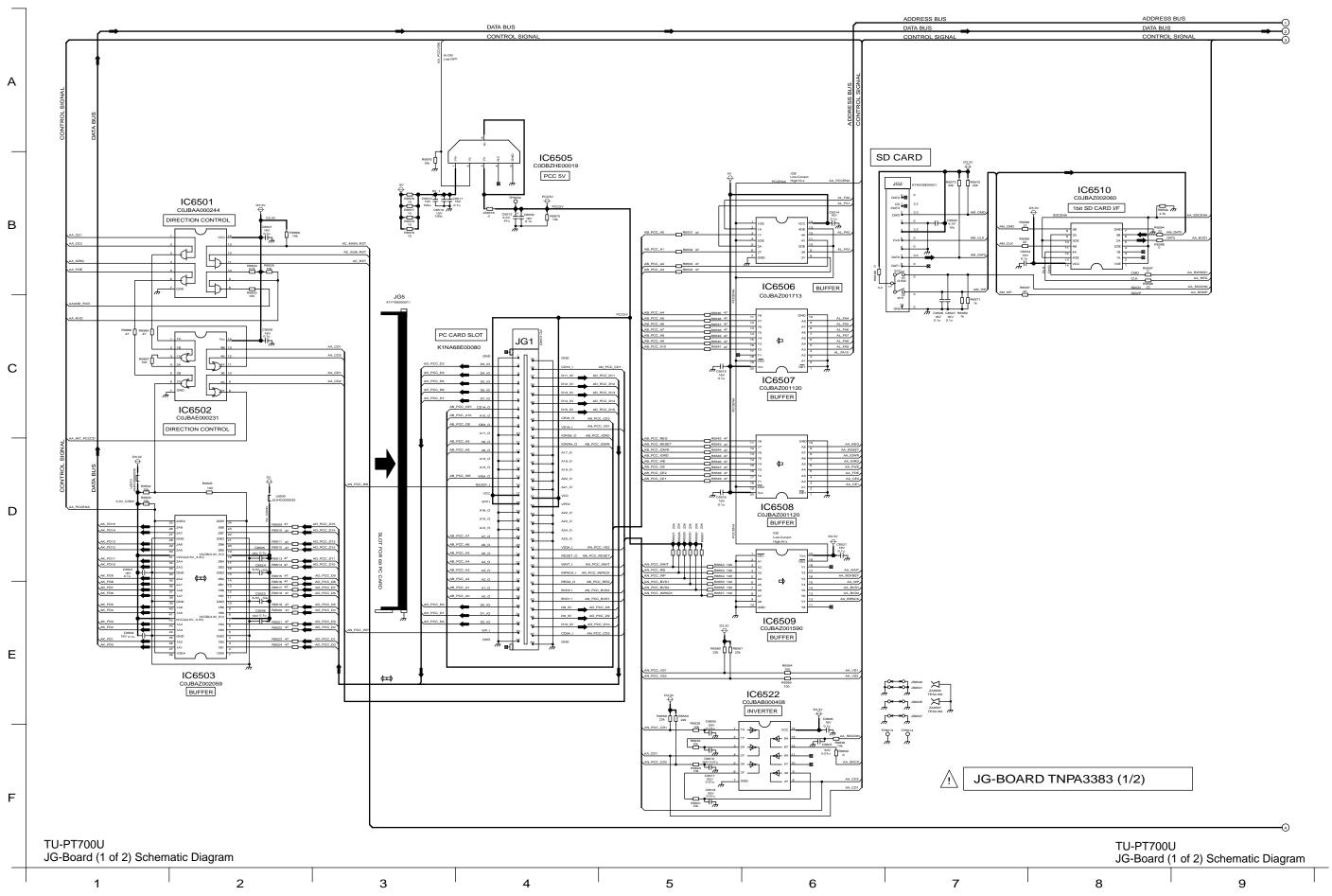
1 2 3 4 5 6 7

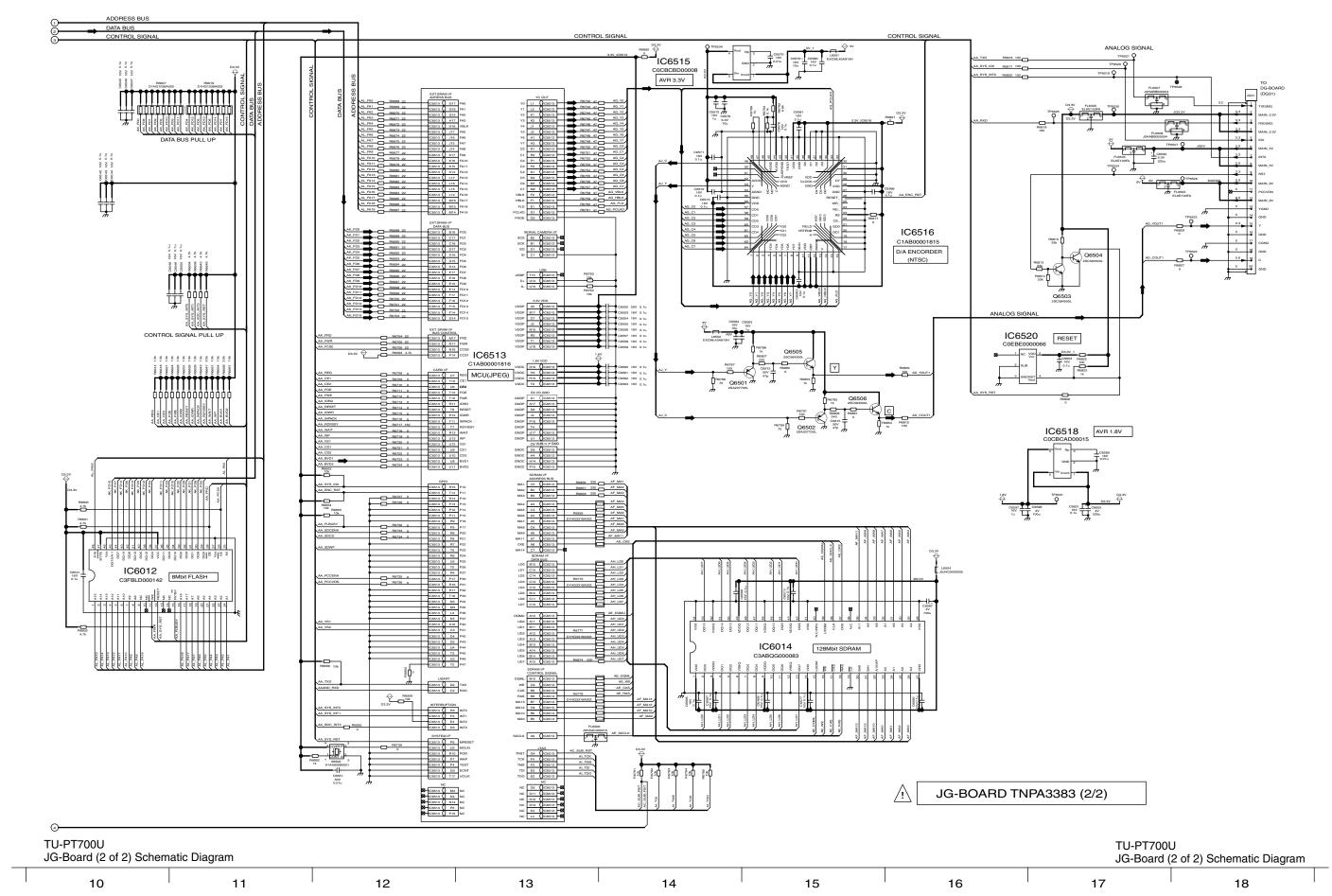


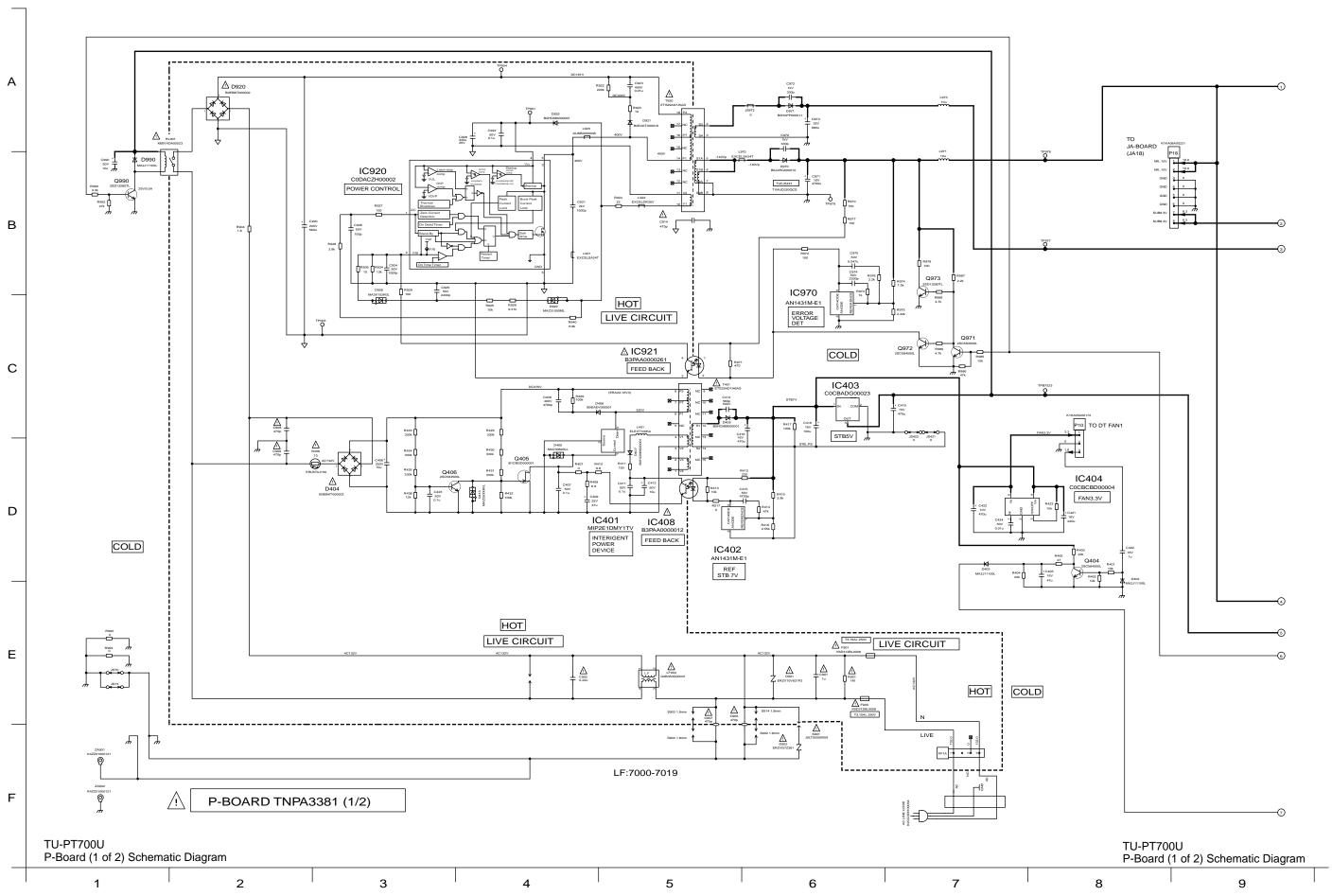


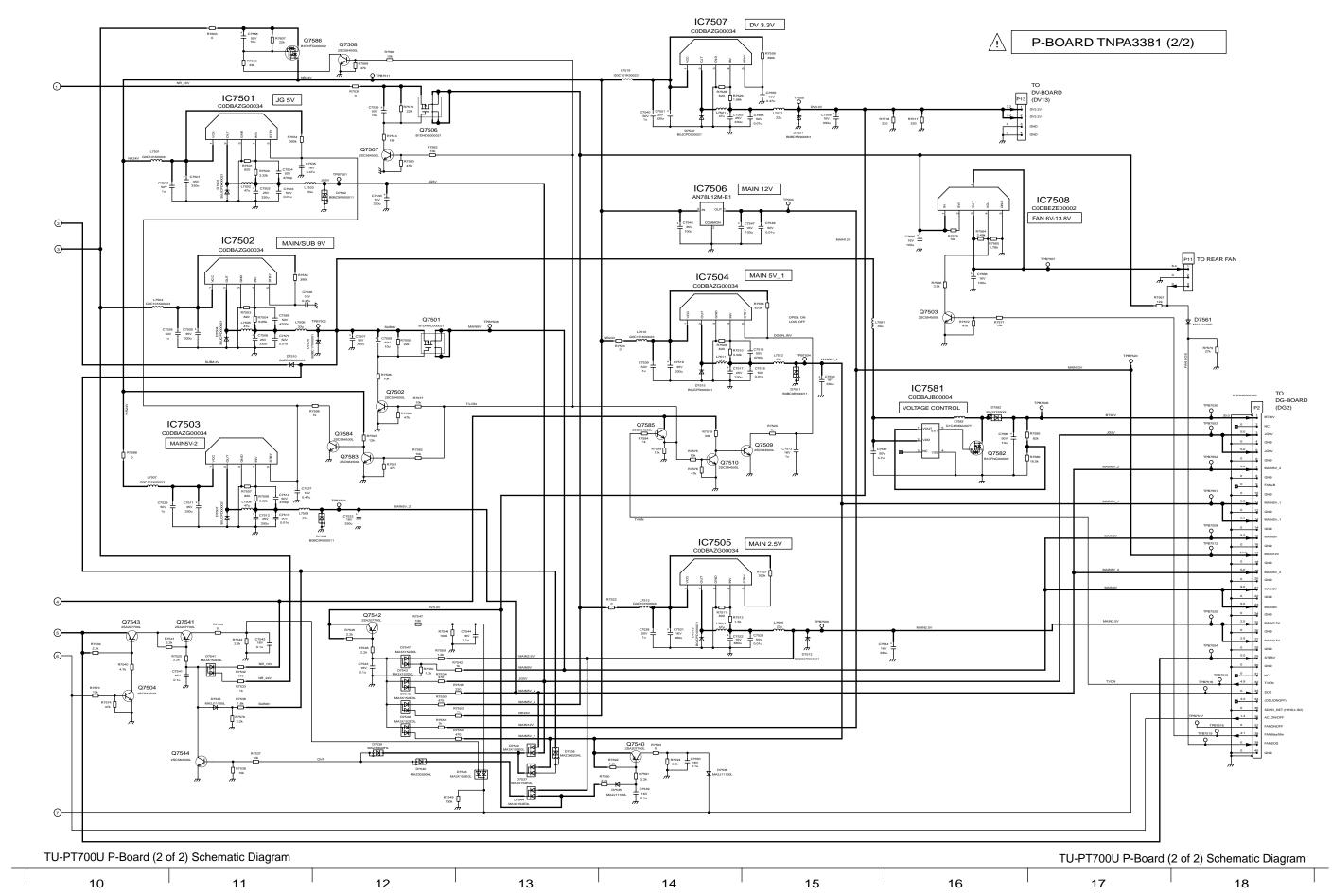
JA-BOARD TNPA3385 TO DG-BOARD (DG23) В С TO P-BOARD (P18) D Ε TU-PT700U JA-Board Schematic Diagram TU-PT700U JA-Board Schematic Diagram 3

Α











# 13 Schematic Diagrams

### 13.1. Schematic Diagram Notes

#### **Important Safety Notice**

Components identified by  $\triangle$  mark have special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.

#### Notes:

1. Resistor

Unit of resistance is OHM  $[\Omega]$  (K=1,000, M=1,000,000).

2. Capacitor

Unit of capacitance is µF, unless otherwise noted.

3. Coi

Unit of inductance is H, unless otherwise noted.

4. Test Point

○ : Test Point position

5. Earth Symbol

 : Line Earth (Hot)

6. Voltage Measurement

Voltage is measured by a DC voltmeter.

Conditions of the measurement are the following:

- 7. When arrow mark ( / ) is found, connection is easily found from the direction of arrow.
- 8. Indicates the major signal flow. : Vio

: Video **→** Audio ⇒

9. This schematic diagram is the latest at the time of printing and subject to change without notice.

#### Remarks:

1. The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection.

The circuit is defined by HOT and COLD indications in the schematic diagram. Take the follwing precautions.

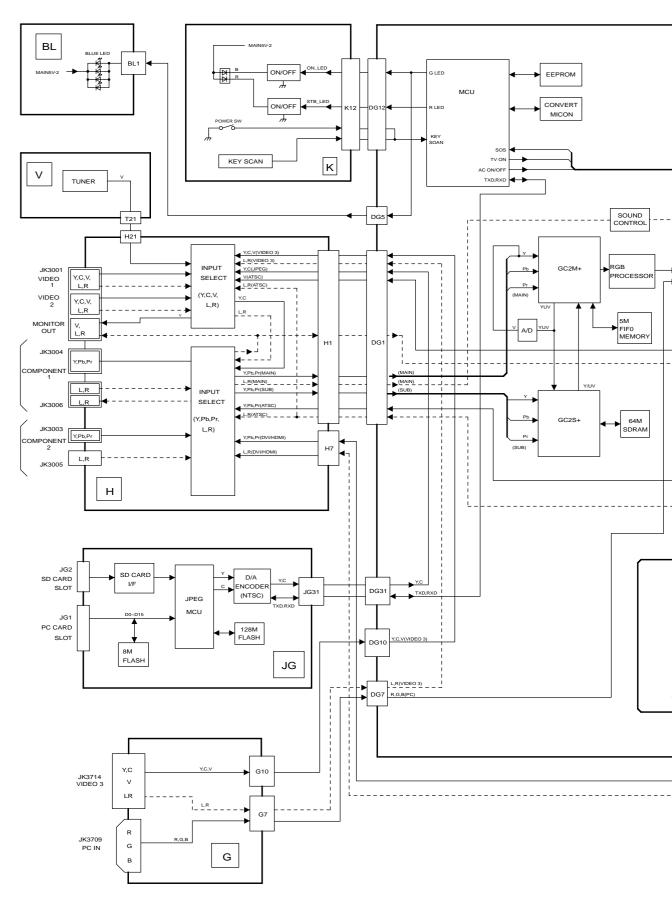
All circuits, except the Power Circuit, are cold.

Precautions

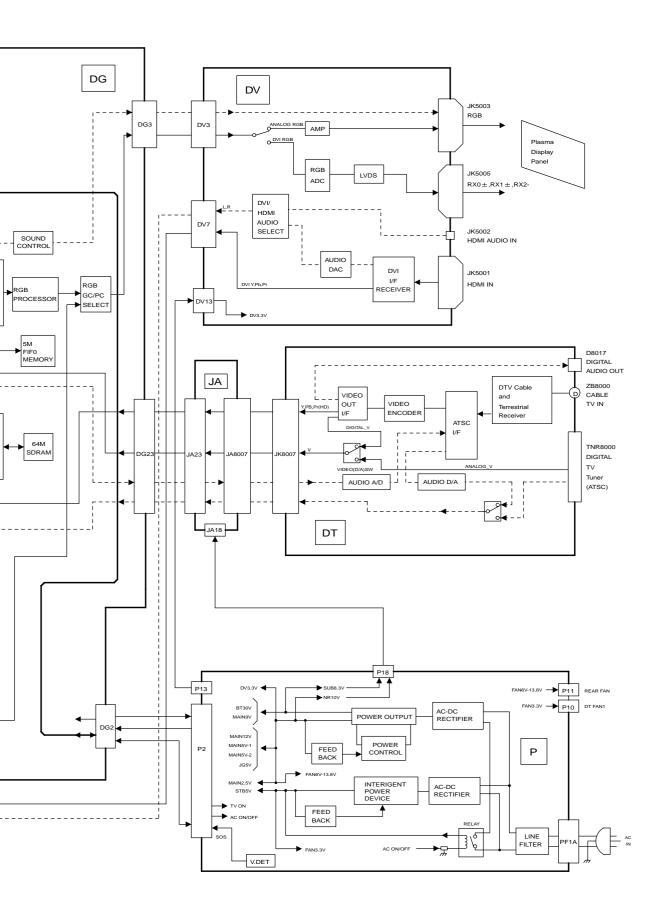
- a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
- b. Do not short- circuit the hot and cold circuits or a fuse may blow and parts may break.
- c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.
   Connect the earth of instruments to the earth connection of the circuit being
- d. Make sure to disconnect the power plug before removing the chassis.

### ---

# 13.2. Main Block Diagram

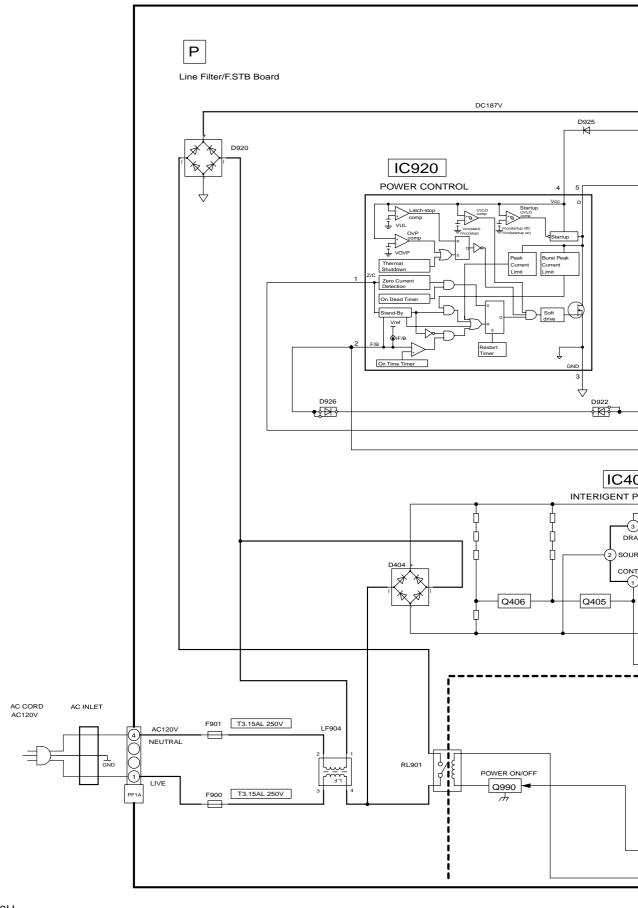


TU-PT700U Main Block Diagram



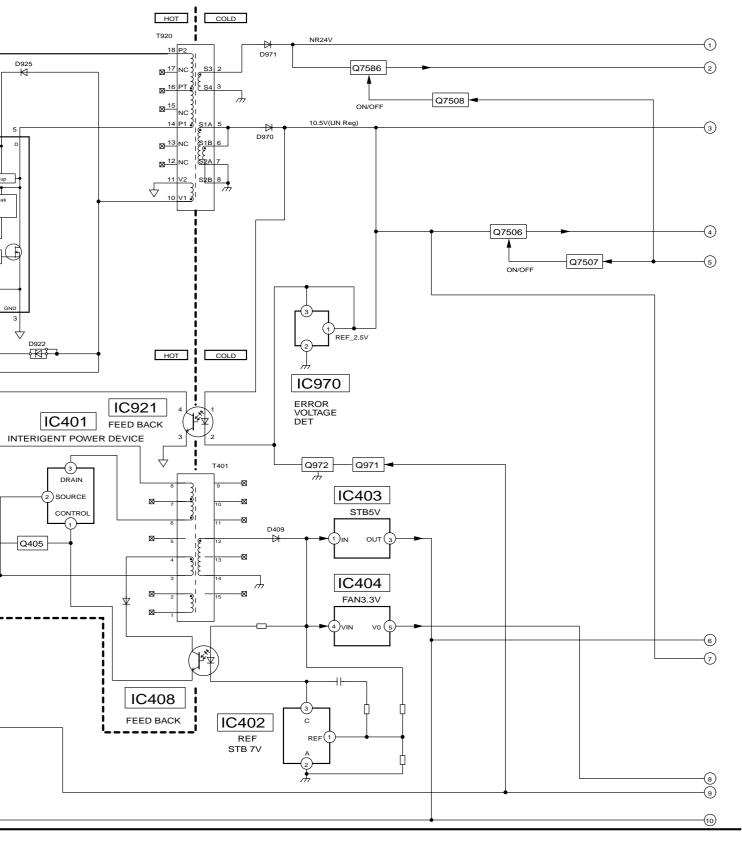
TU-PT700U Main Block Diagram

# 13.3. P-Board Block Diagram



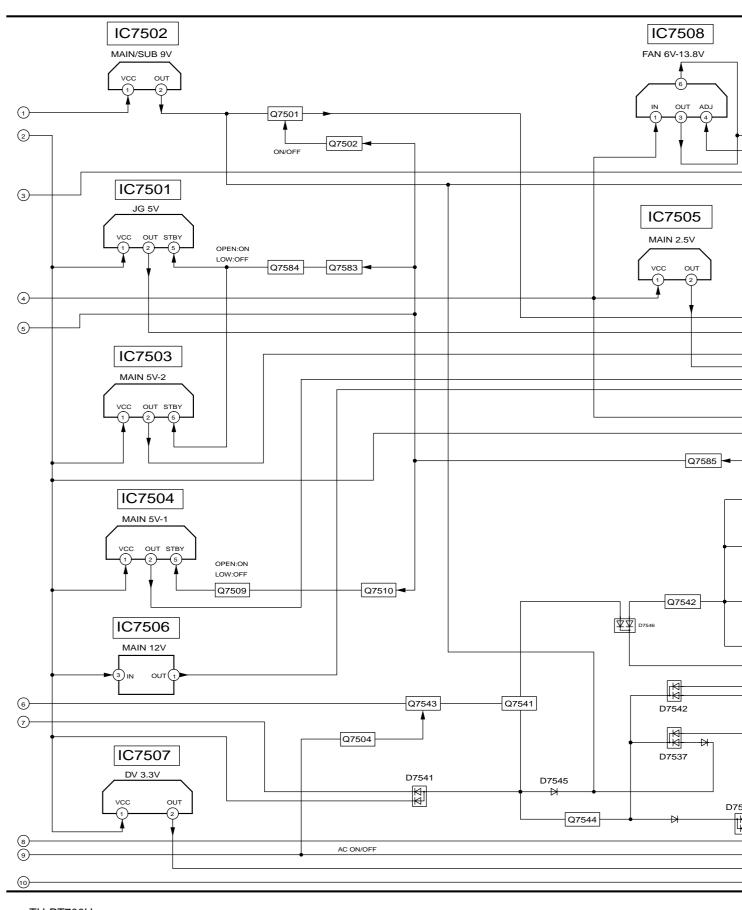
TU-PT700U P-Board Block Diagram





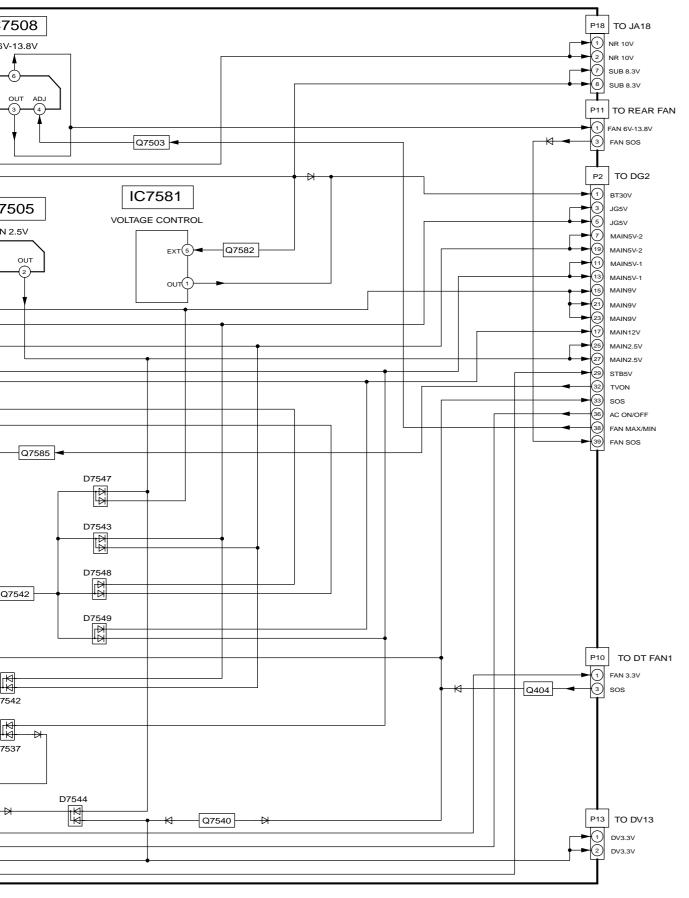
TU-PT700U P-Board Block Diagram





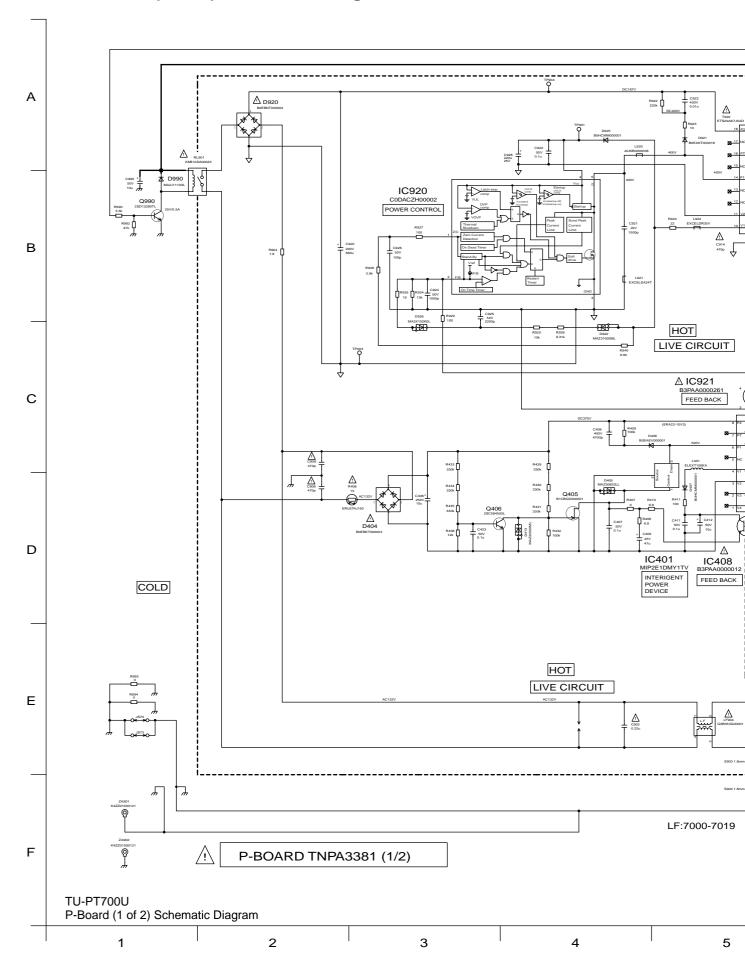
TU-PT700U P-Board Block Diagram

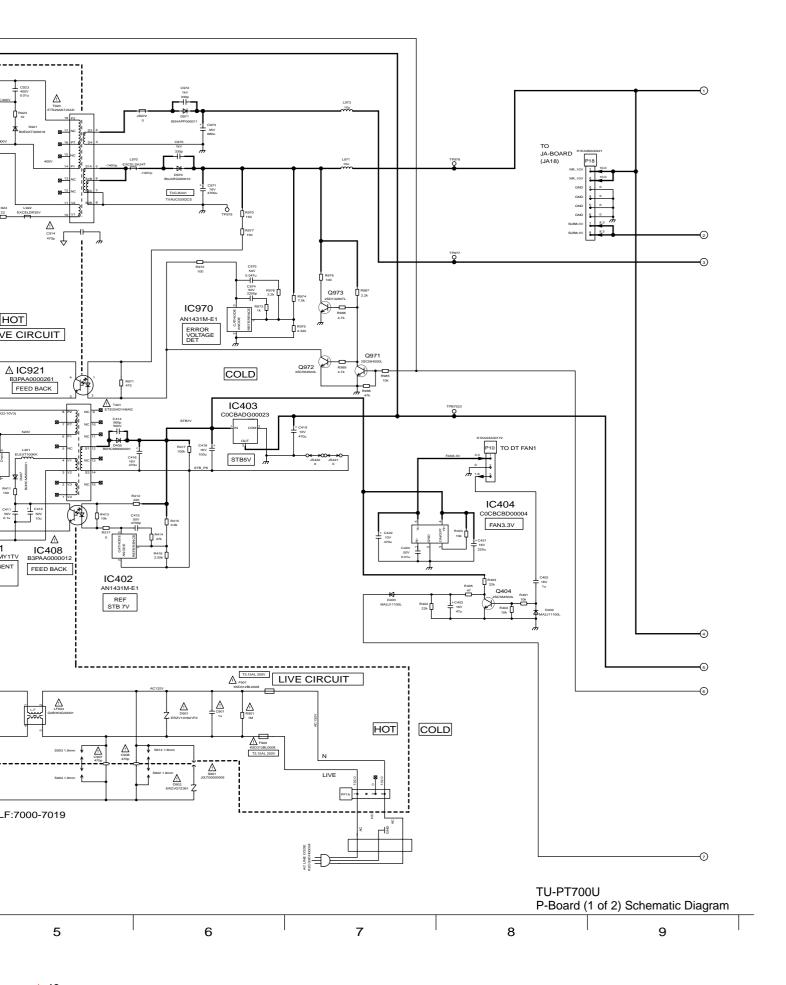




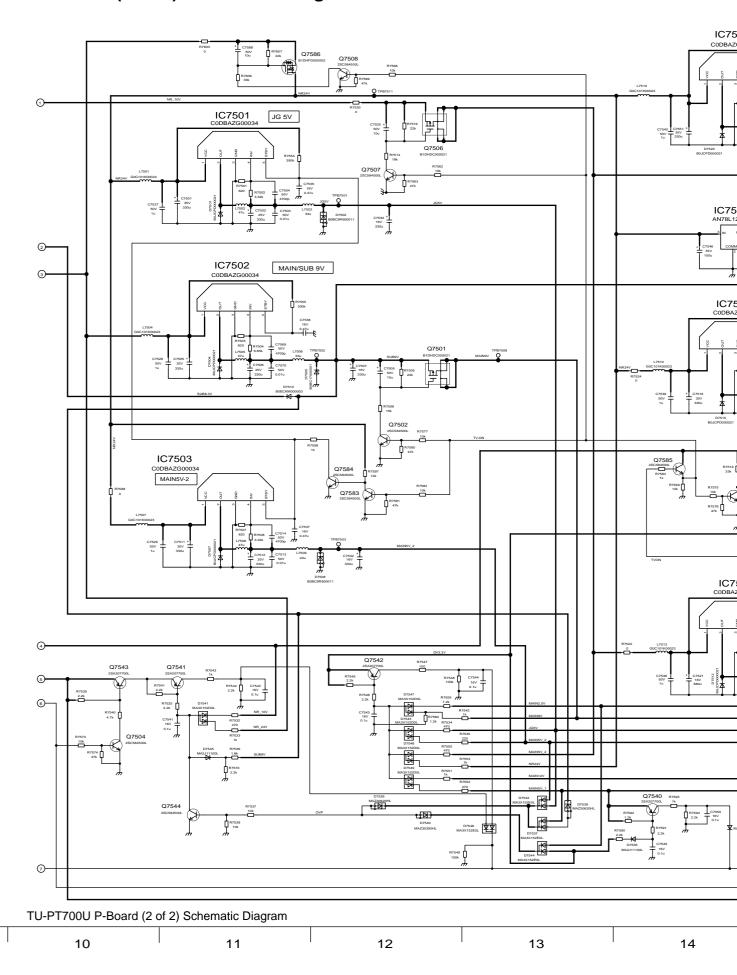
TU-PT700U P-Board Block Diagram

# 13.4. P-Board (1 of 2) Schematic Diagram

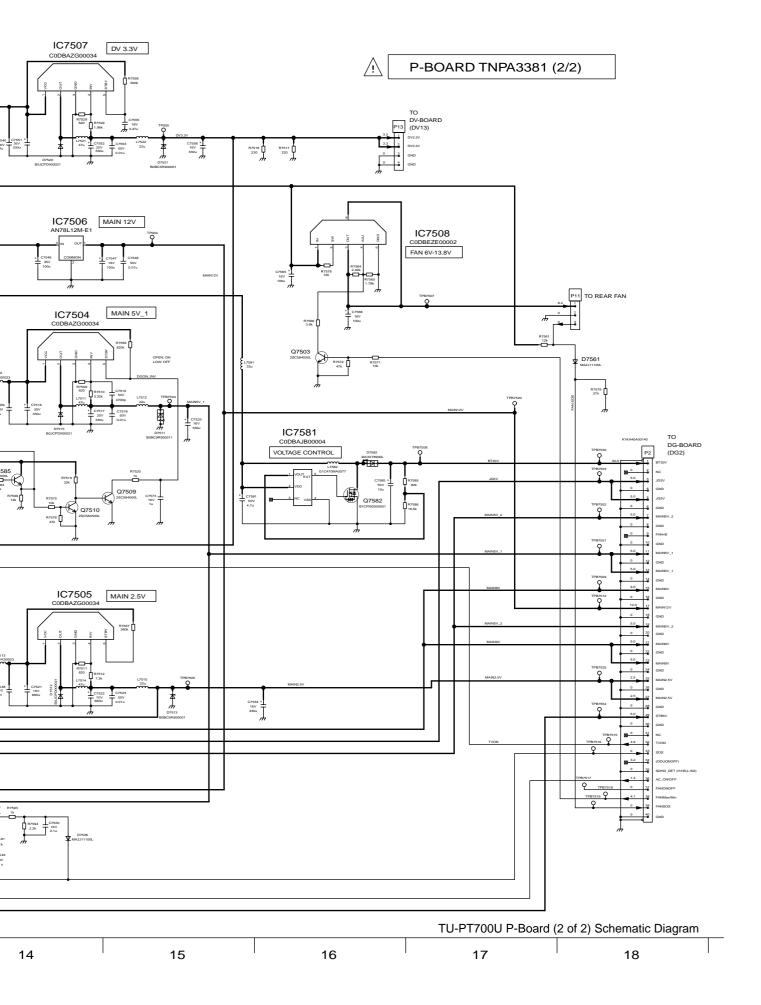




# 13.5. P-Board (2 of 2) Schematic Diagram

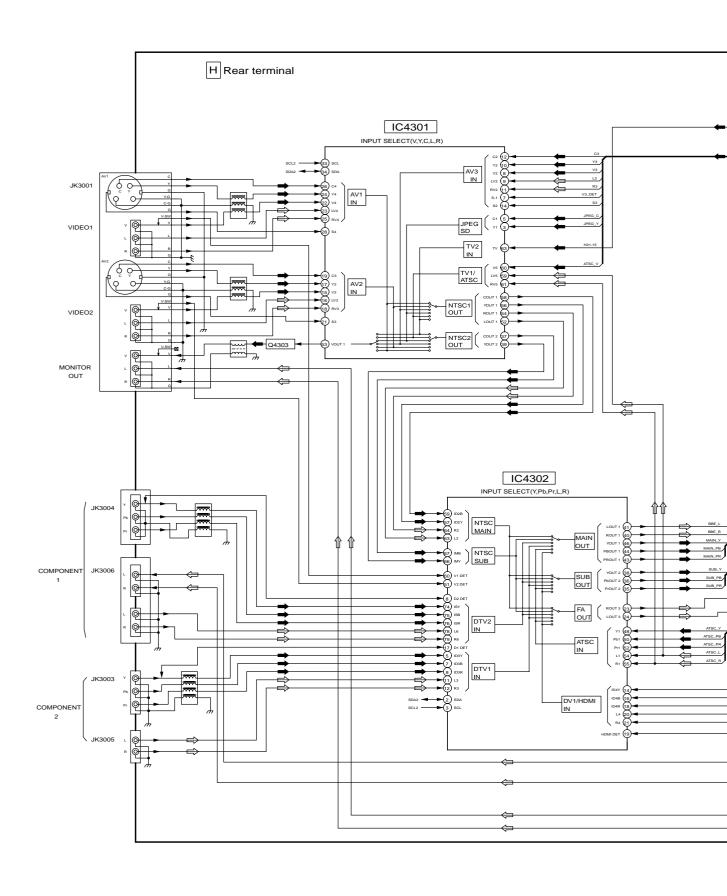






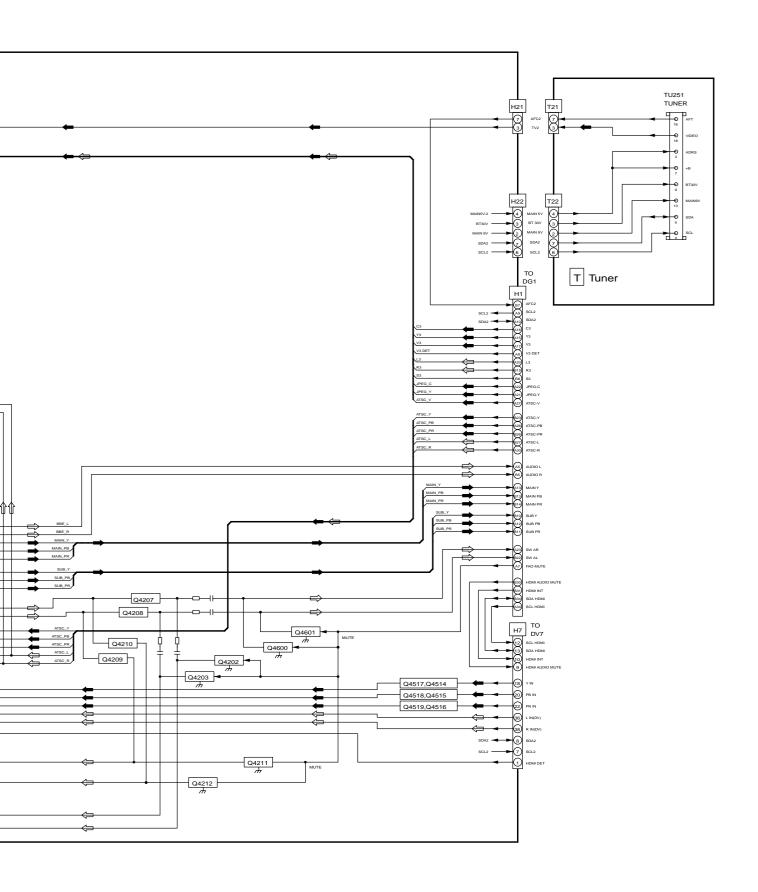
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# 13.6. H and T-Board Block Diagram



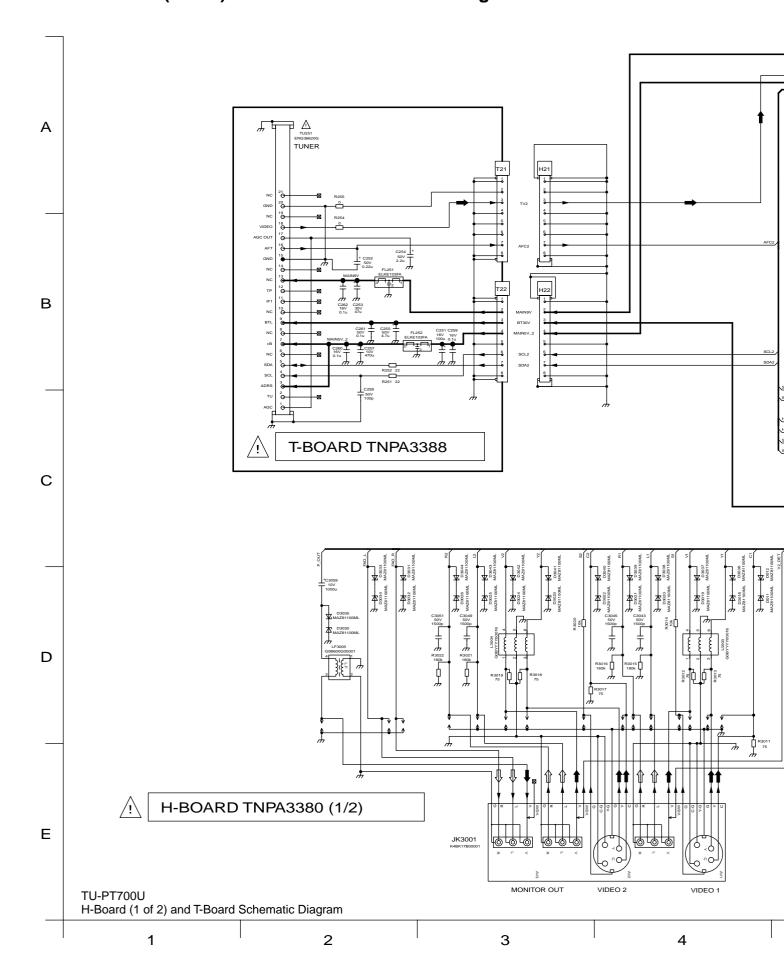
TU-PT700U H and T-Board Block Diagram

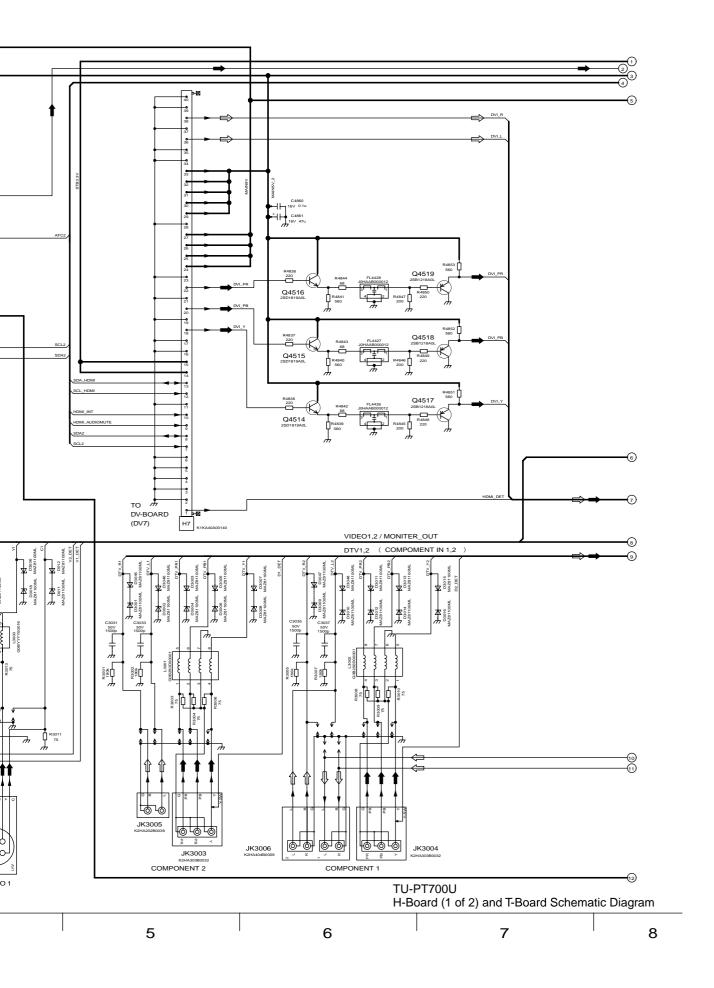




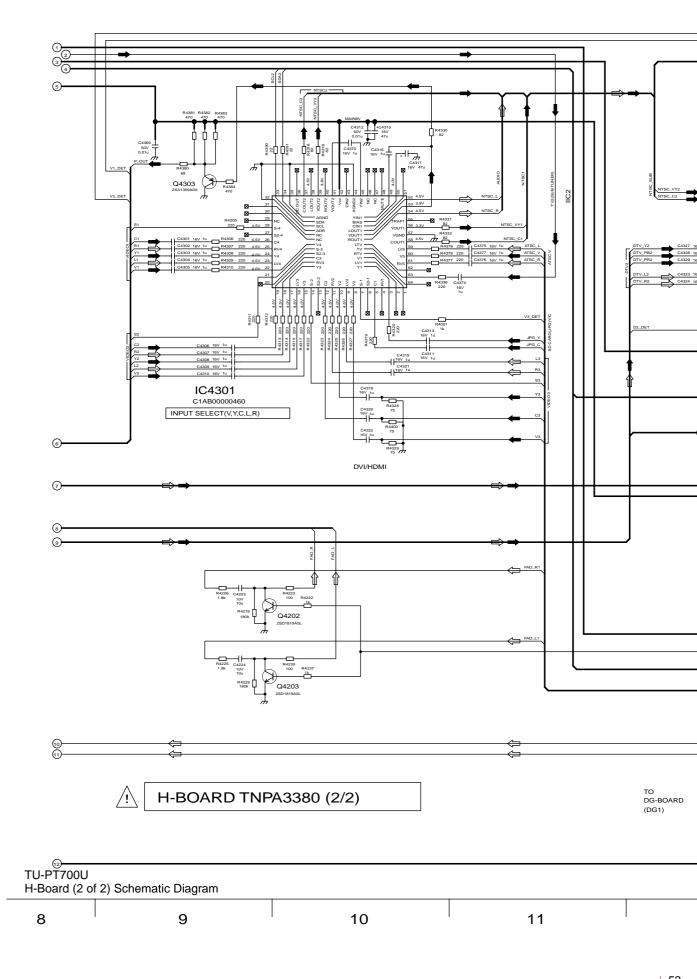
TU-PT700U H and T-Board Block Diagram

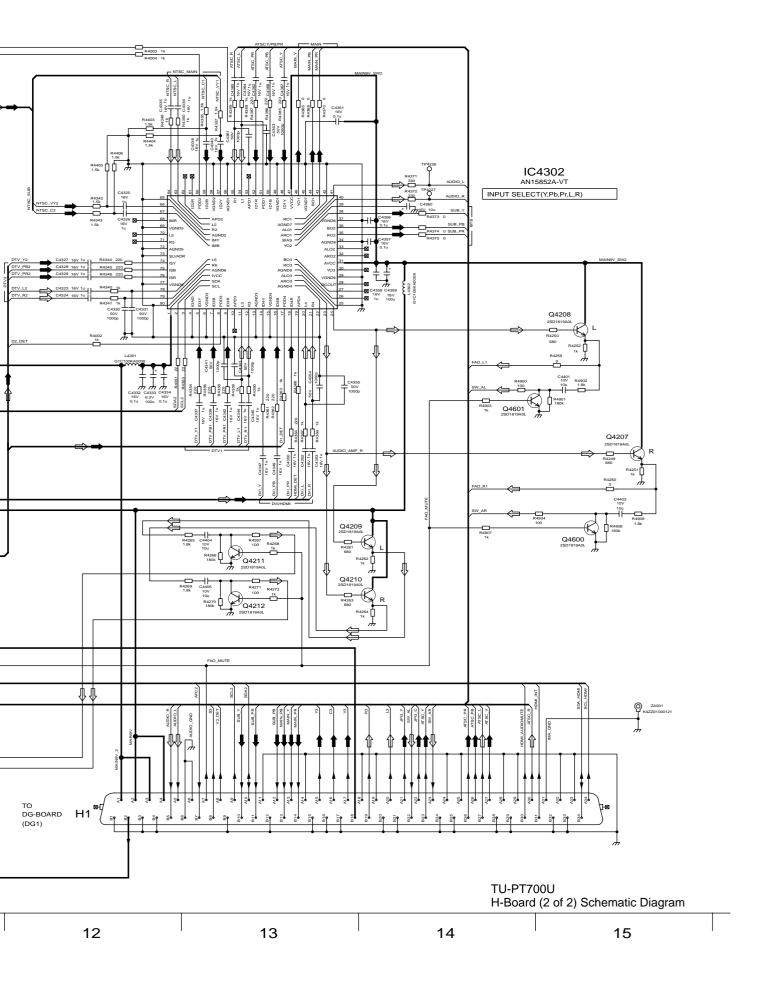
# 13.7. H-Board (1 of 2) and T-Board Schematic Diagram



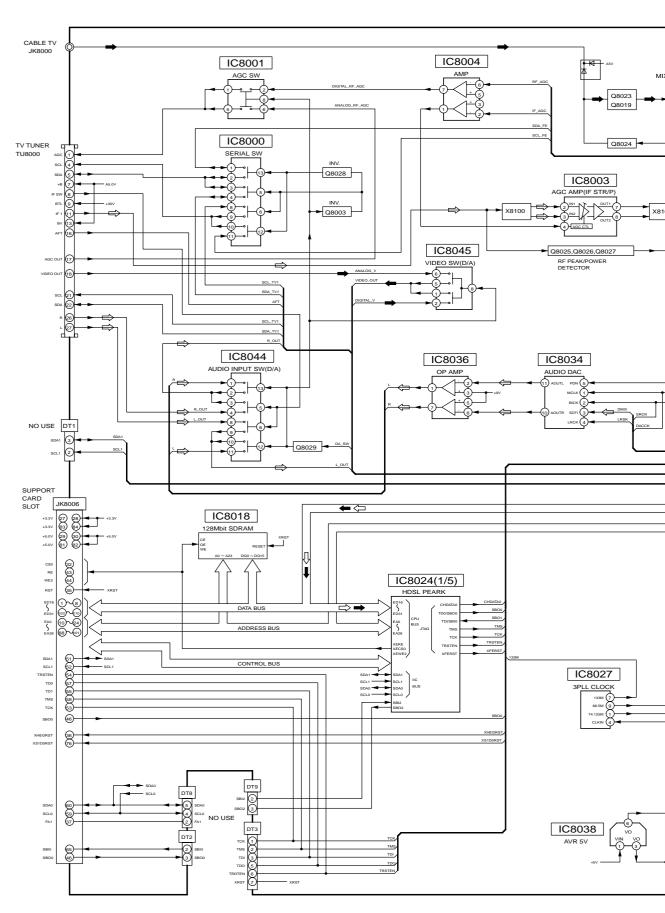


# 13.8. H-Board (2 of 2) Schematic Diagram



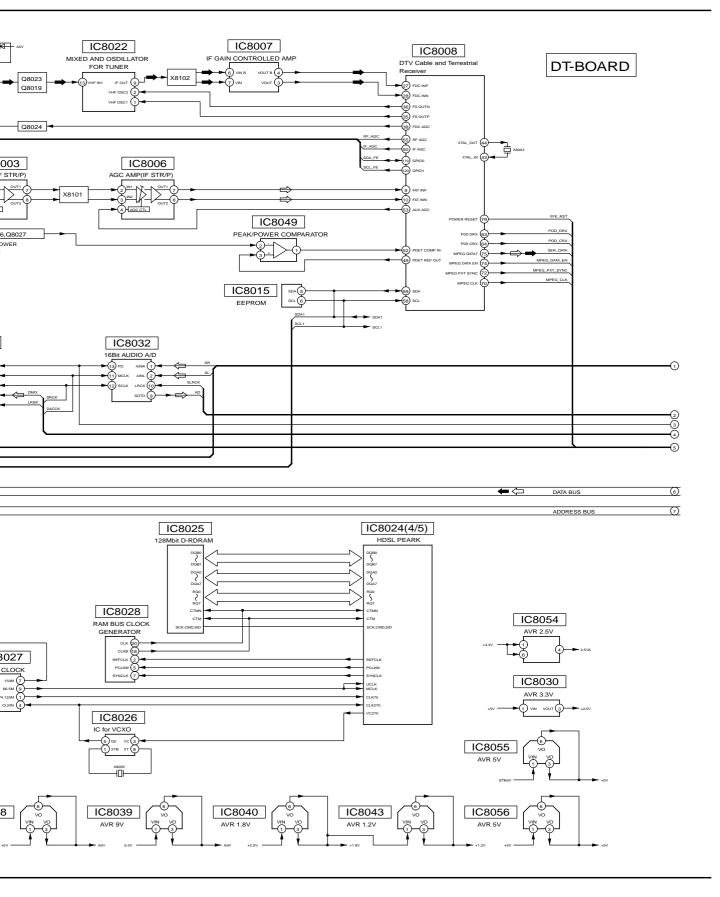


## 13.9. DT and JA-Board Block Diagram



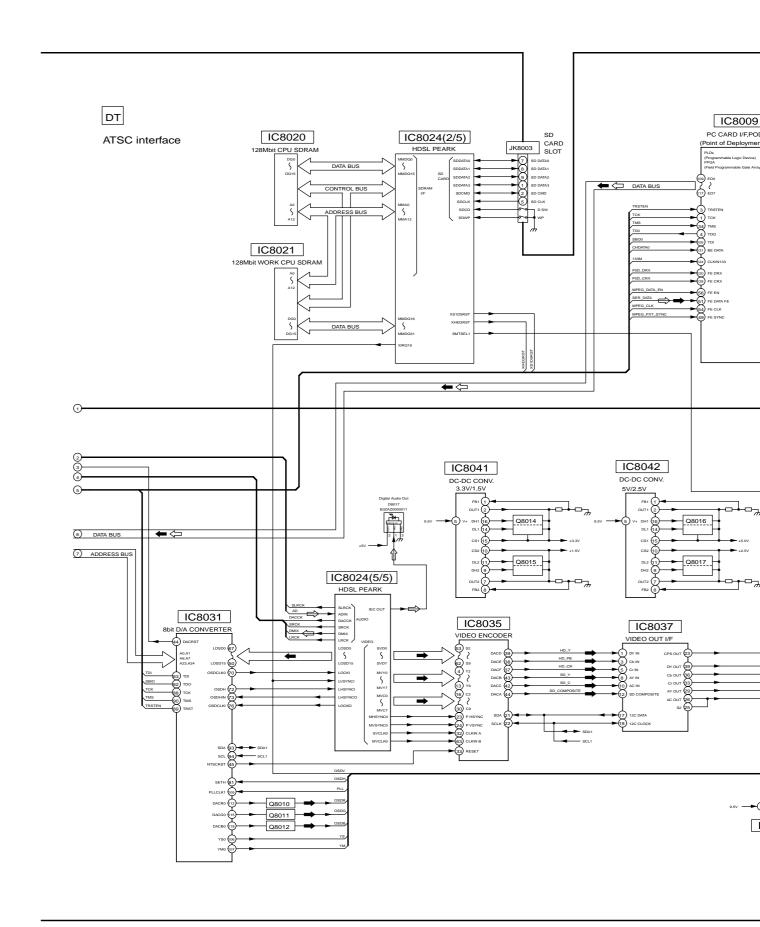
TU-PT700U DT and JA-Board Block Diagram

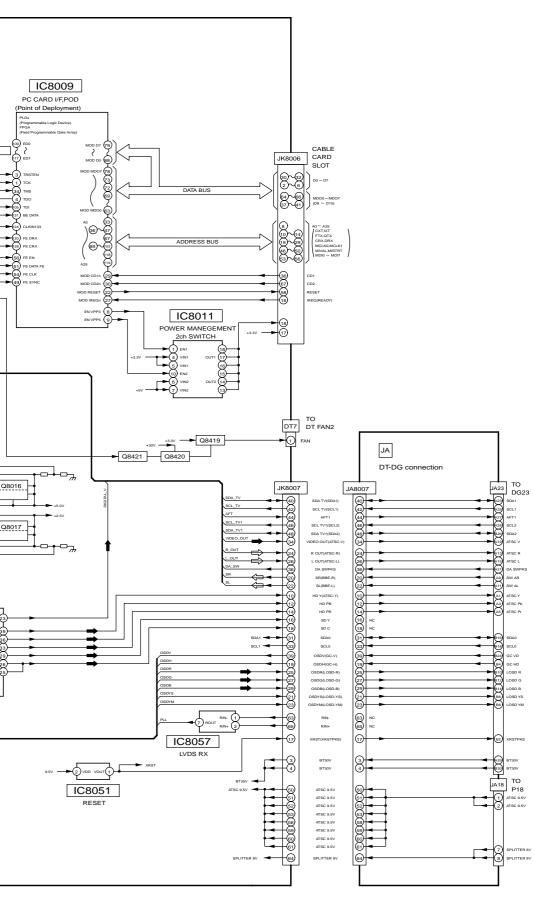




TU-PT700U DT and JA-Board Block Diagram



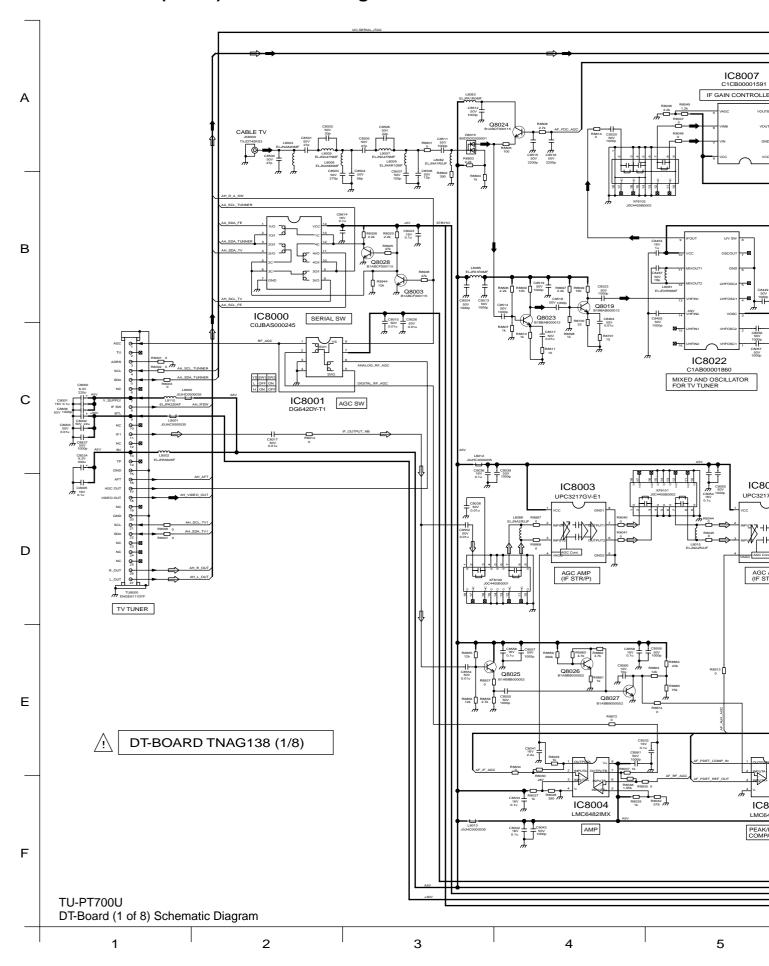


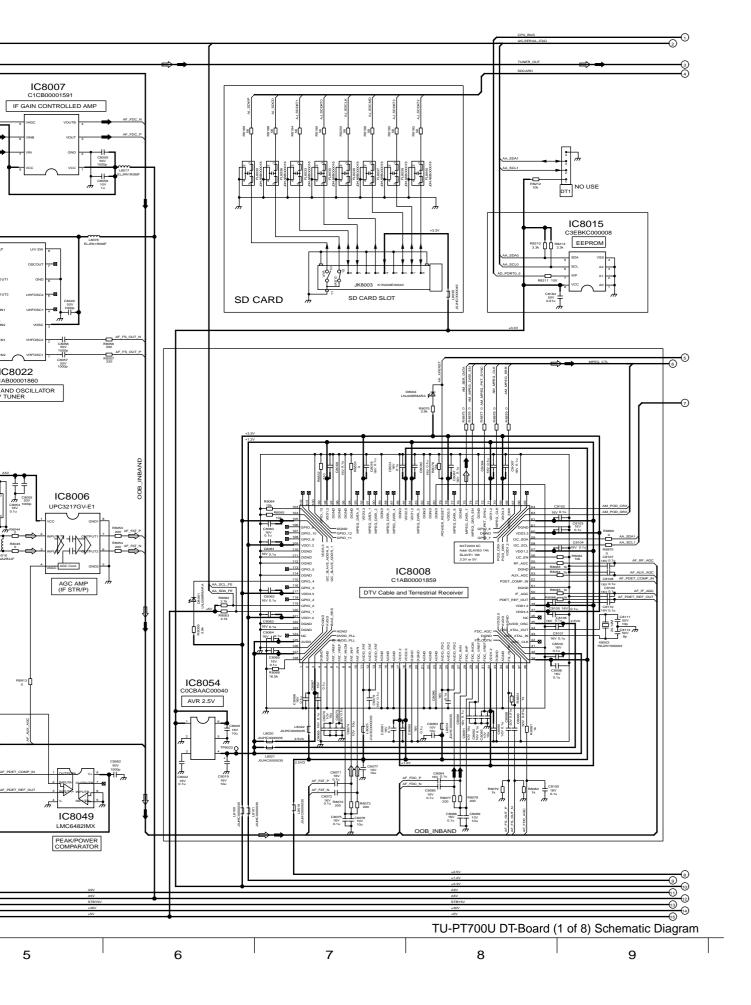


TU-PT700U DT and JA-Board Block Diagram

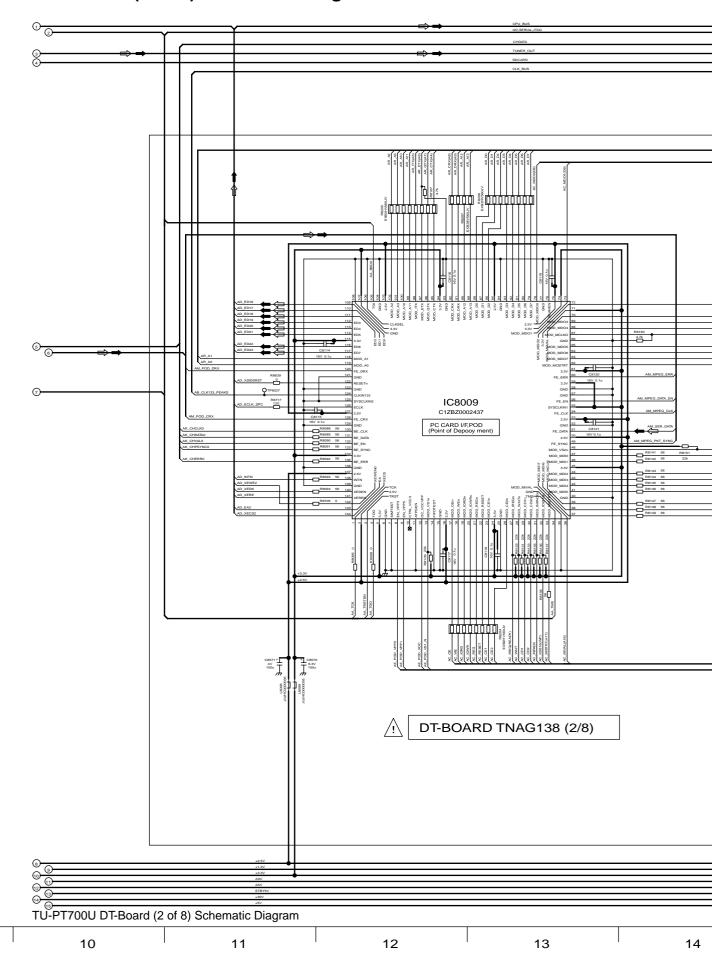
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## 13.10. DT-Board (1 of 8) Schematic Diagram

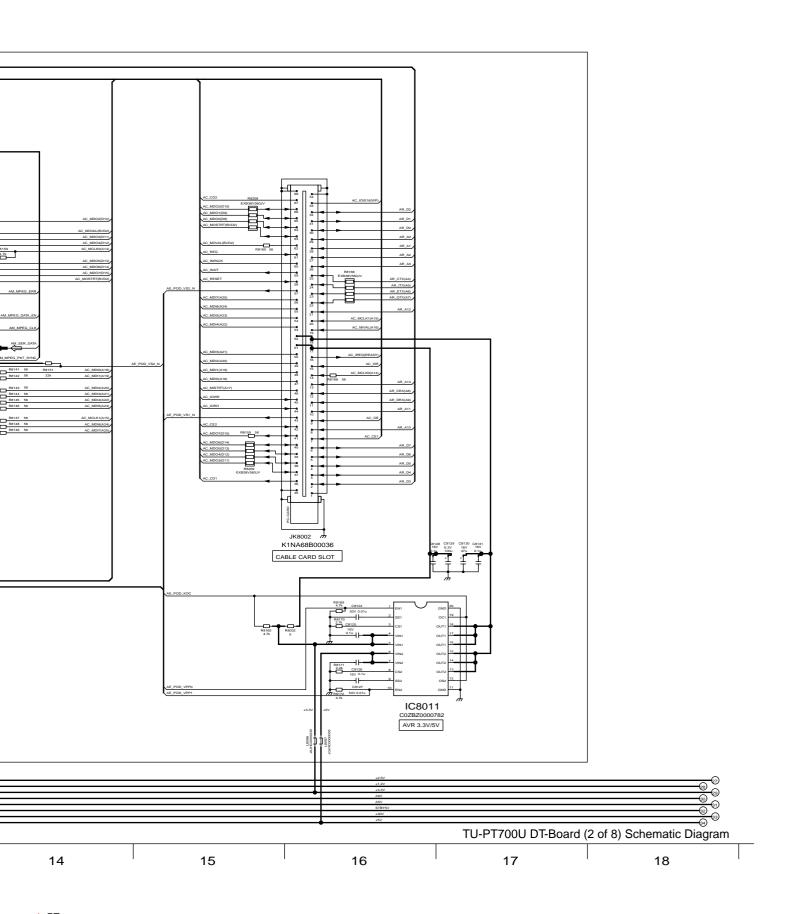




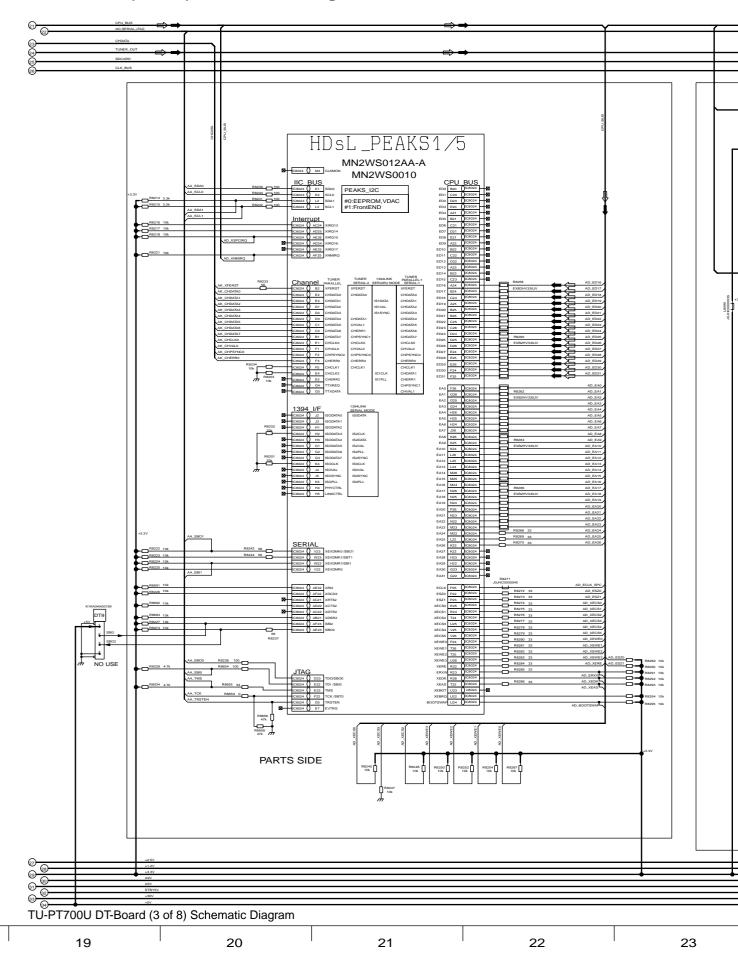
# 13.11. DT-Board (2 of 8) Schematic Diagram

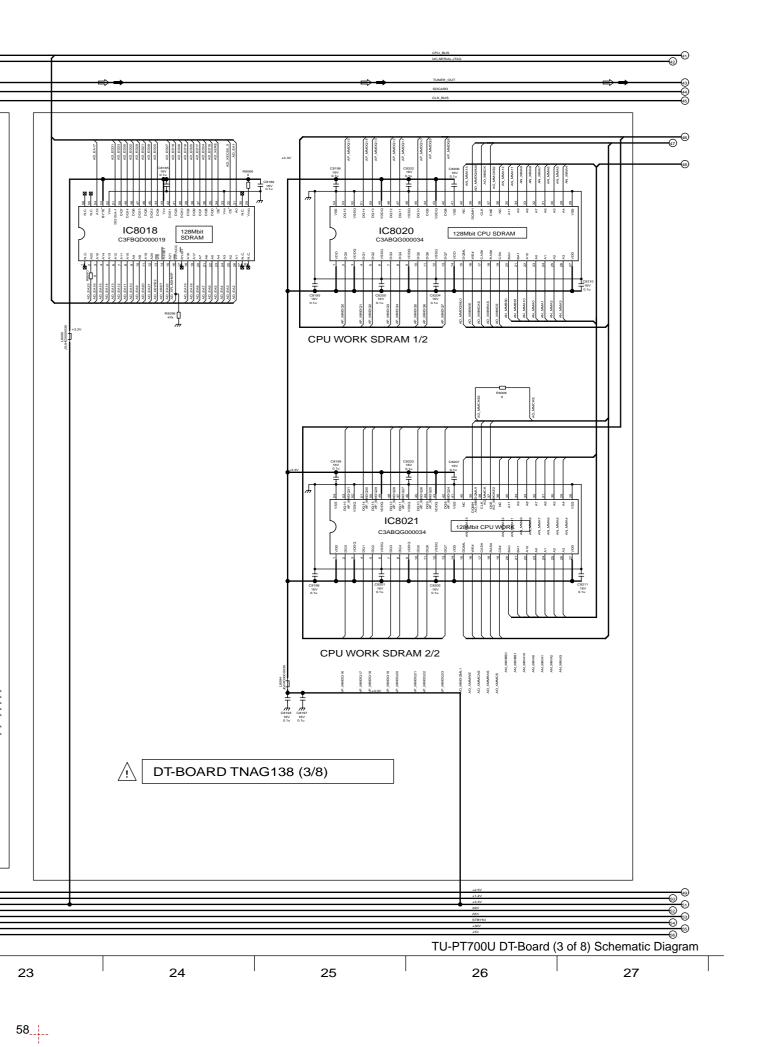


~ ~	~ -	CPU_BUS	~ <del>_</del>	
7	<b>₩</b>	I2C,SERIAL,JTAG	¬ <b>-</b>	
				•
		CHDATA		<del></del>
⇒⇒	⇒⇒	TUNER_OUT	<del></del>	
<del>-</del> -	<b>→</b>	SDCARD	~ ~	
		CLK_BUS		
				(26)

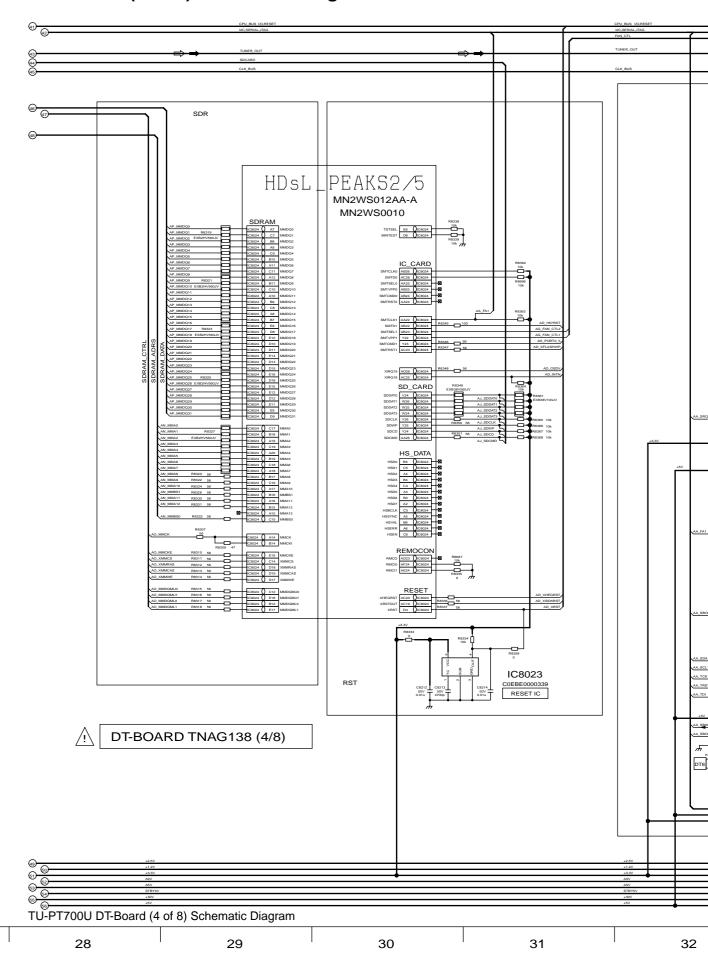


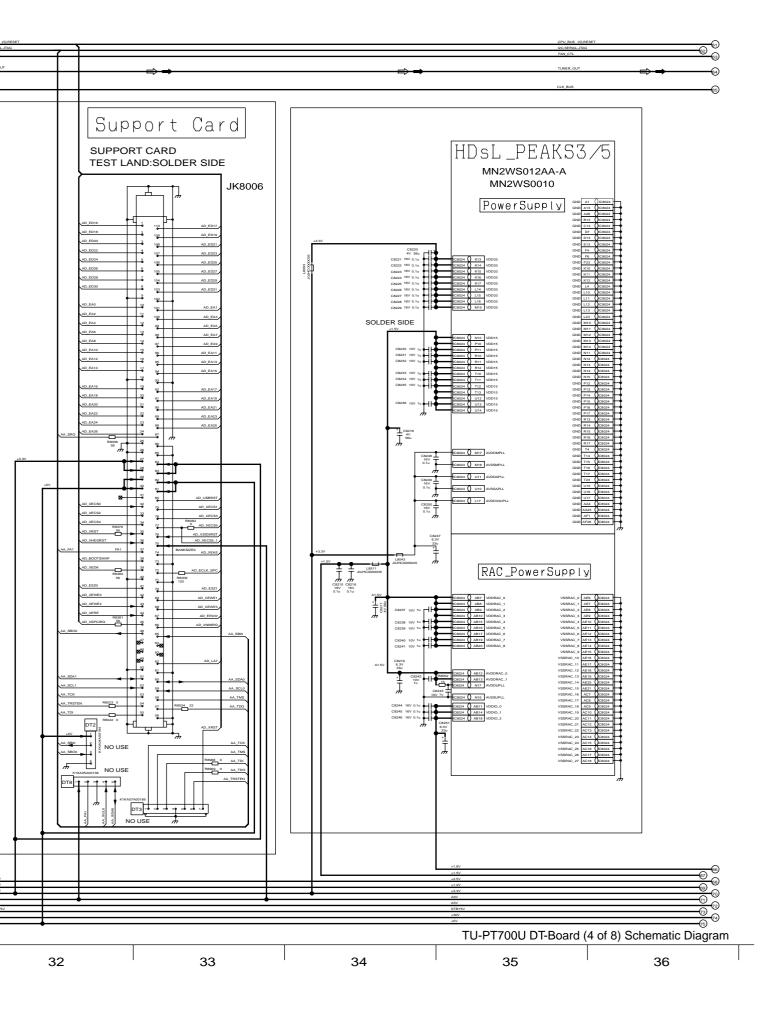
## 13.12. DT-Board (3 of 8) Schematic Diagram



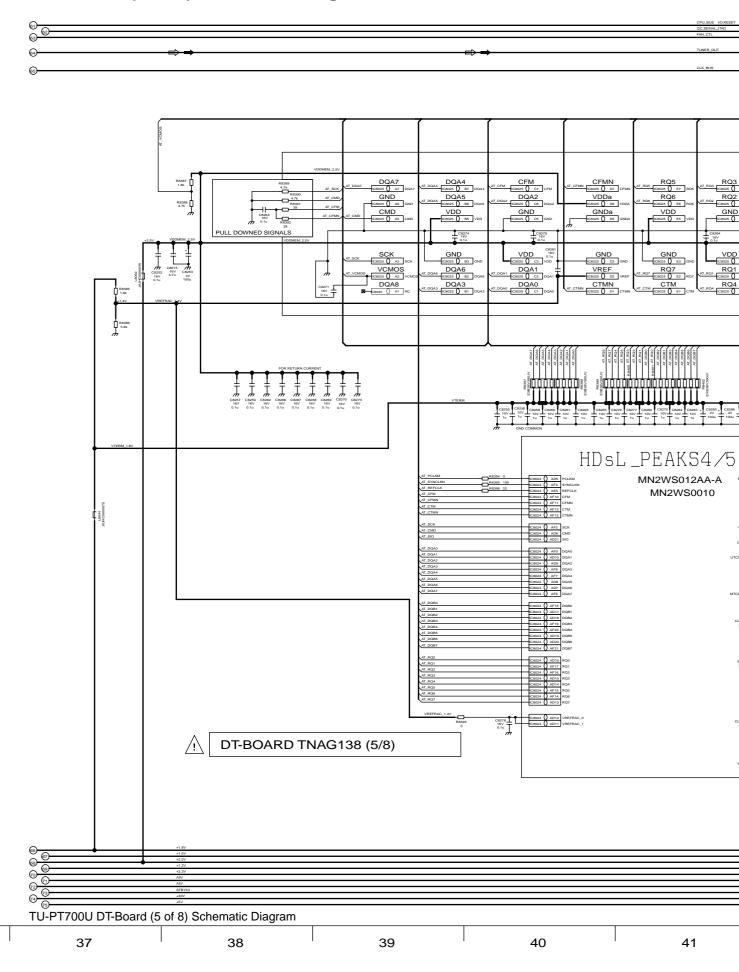


## 13.13. DT-Board (4 of 8) Schematic Diagram

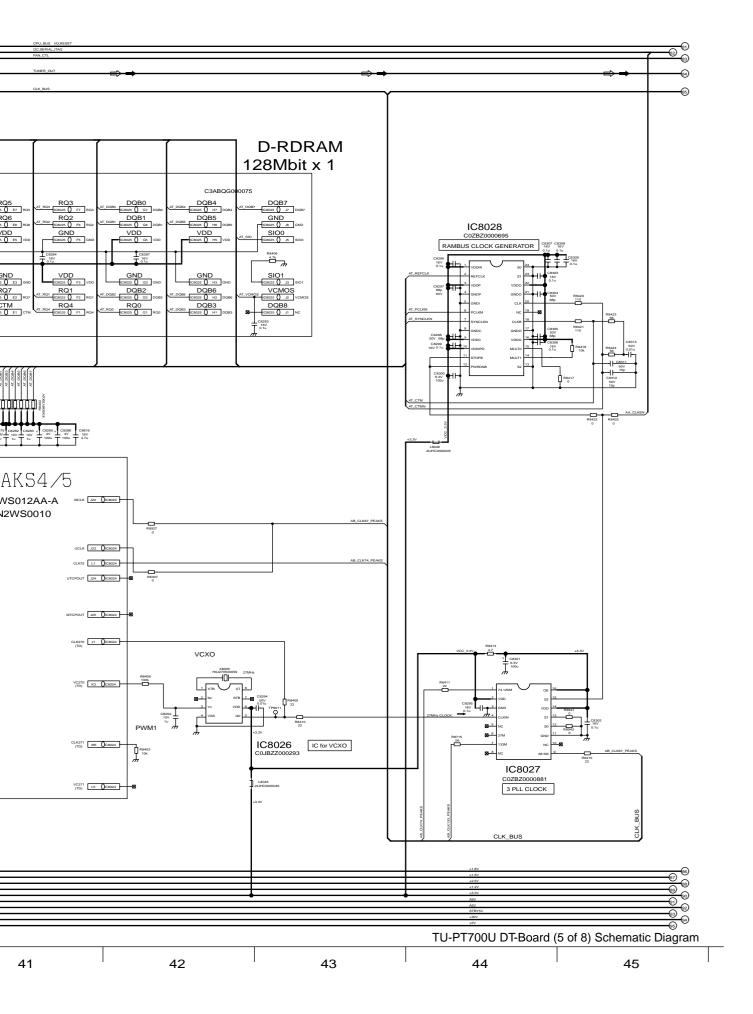




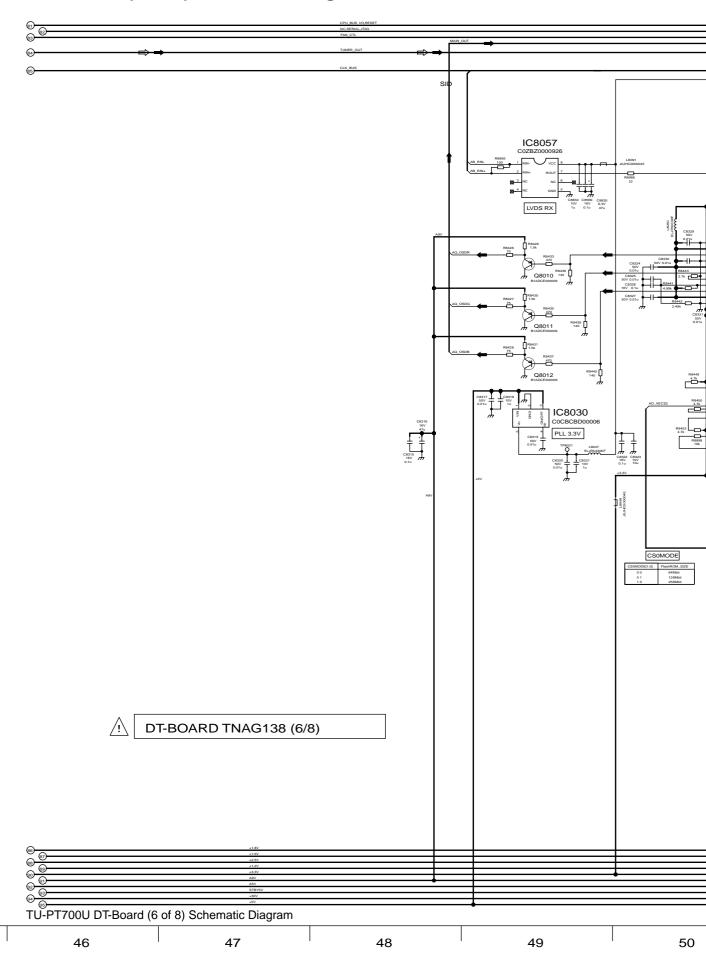
#### 13.14. DT-Board (5 of 8) Schematic Diagram

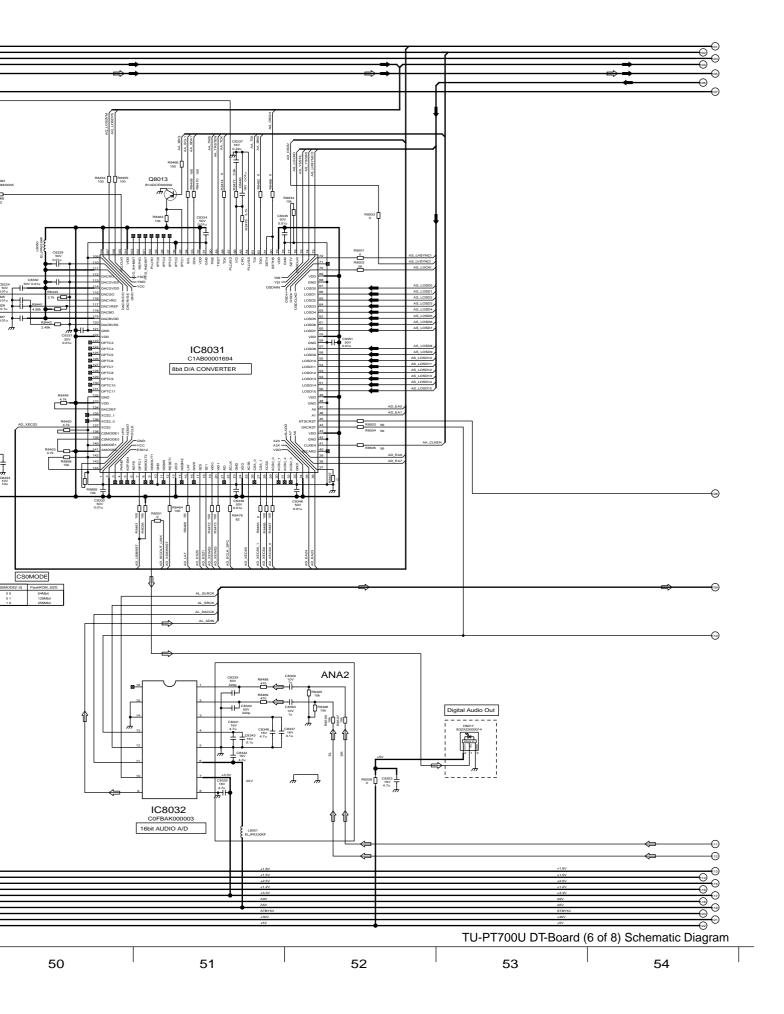




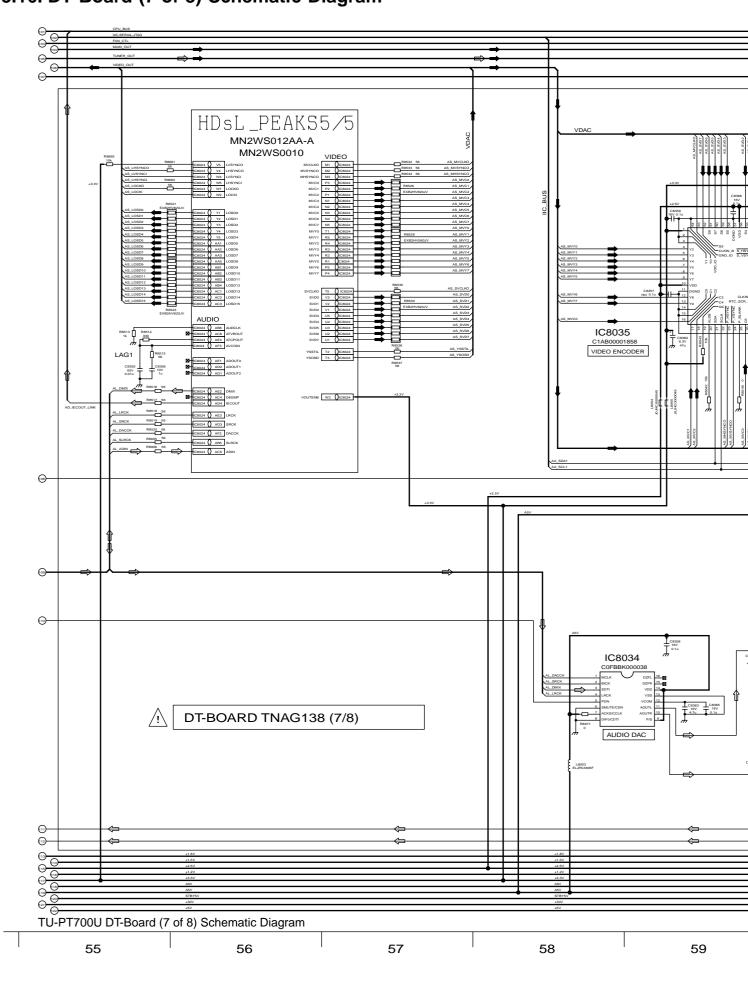


## 13.15. DT-Board (6 of 8) Schematic Diagram

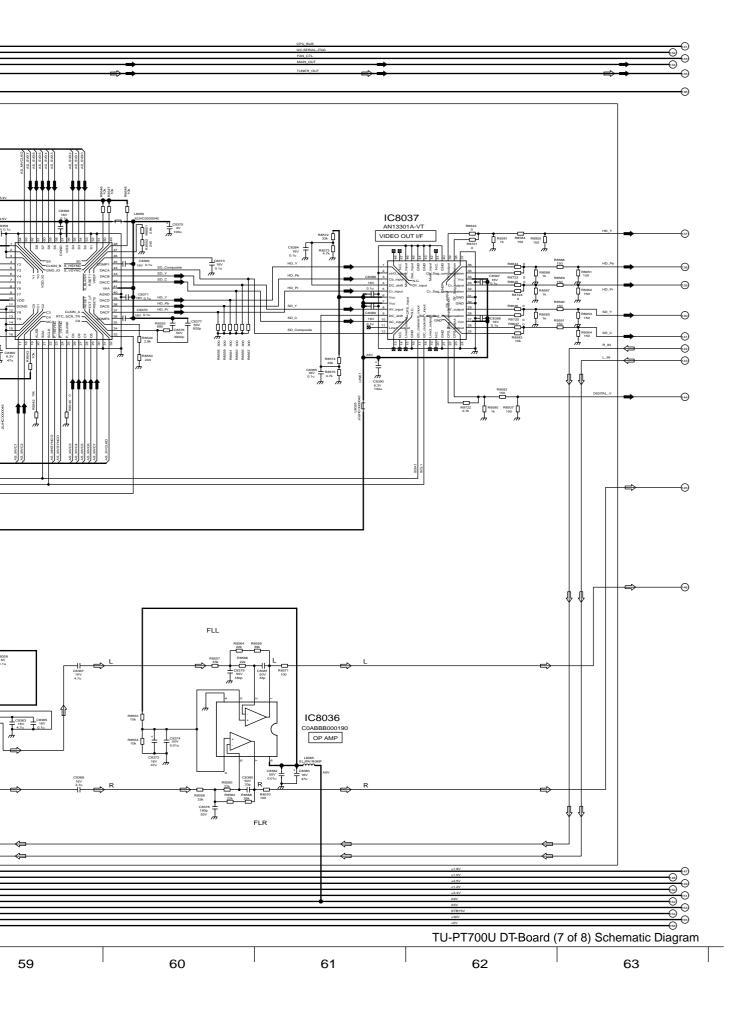




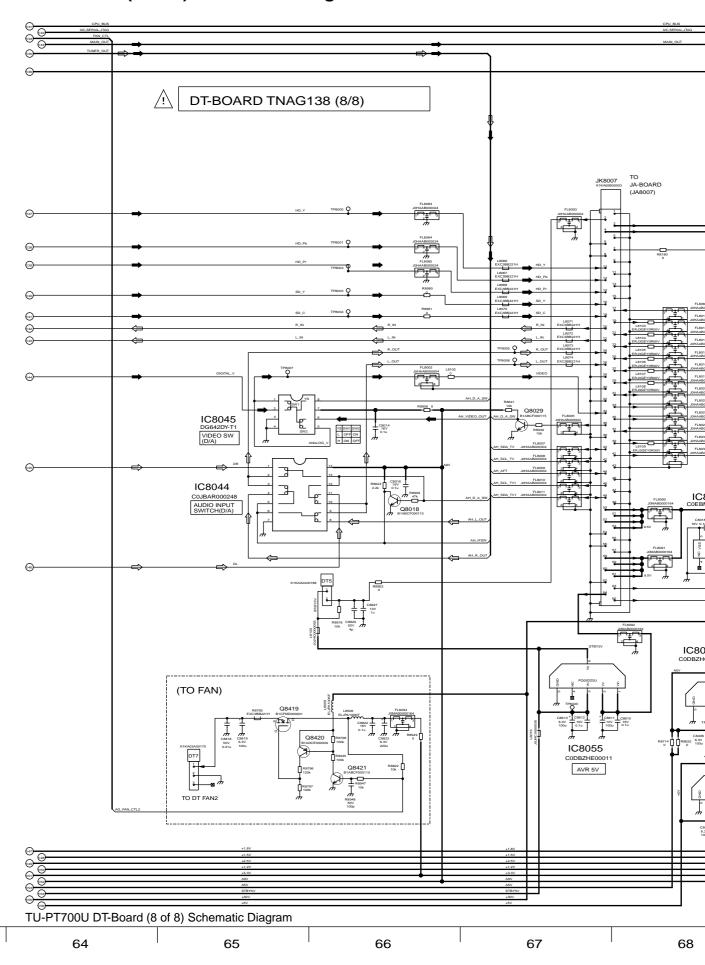
# 13.16. DT-Board (7 of 8) Schematic Diagram



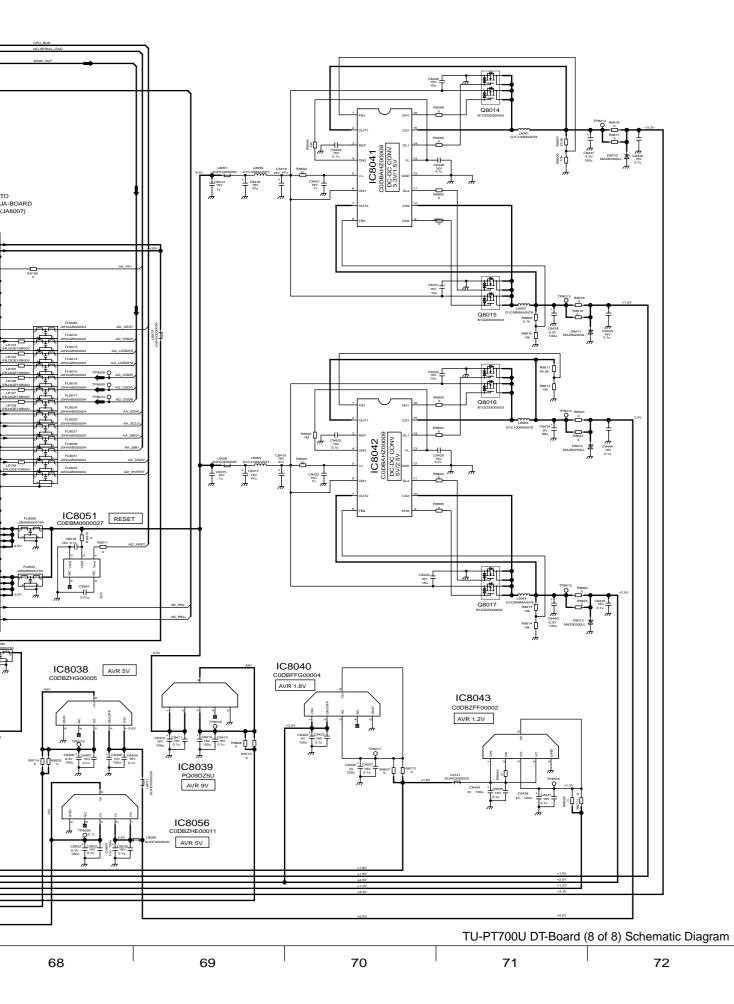




## 13.17. DT-Board (8 of 8) Schematic Diagram

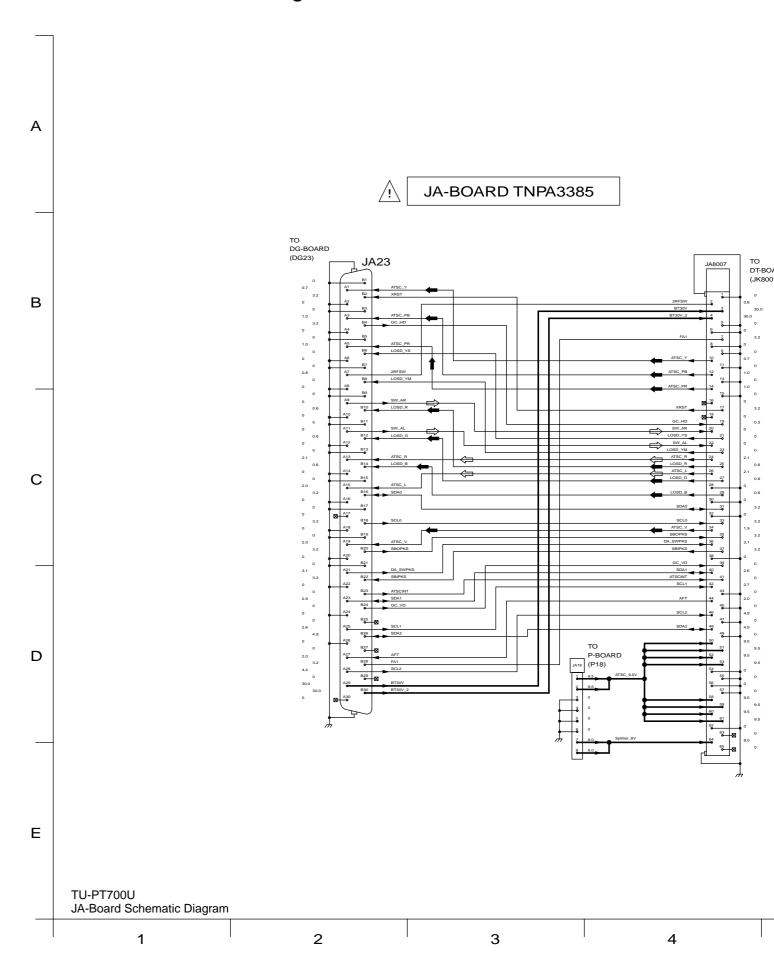


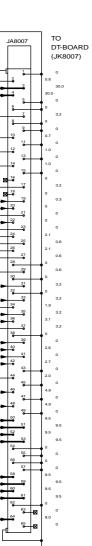




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## 13.18. JA-Board Schematic Diagram

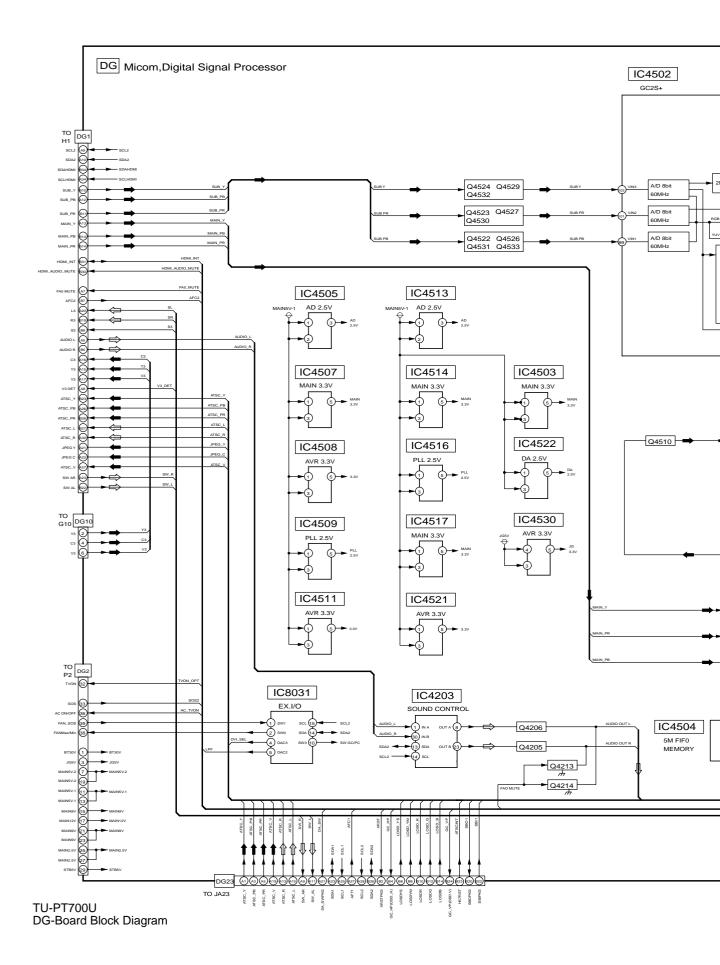


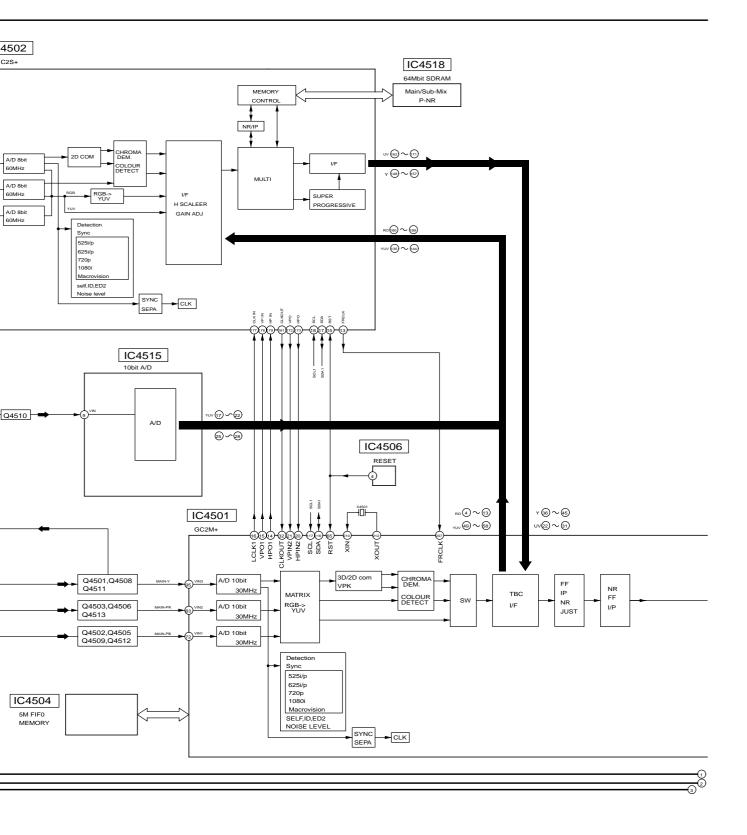


TU-PT700U
JA-Board Schematic Diagram

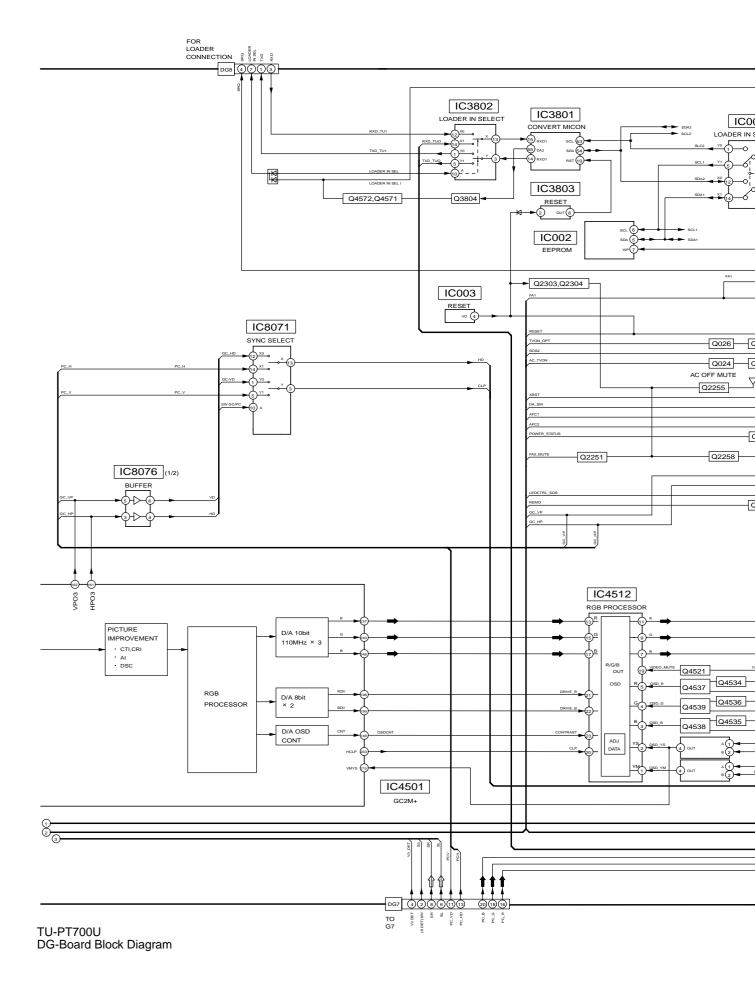
5 6 7 8

## 13.19. DG-Board Block Diagram

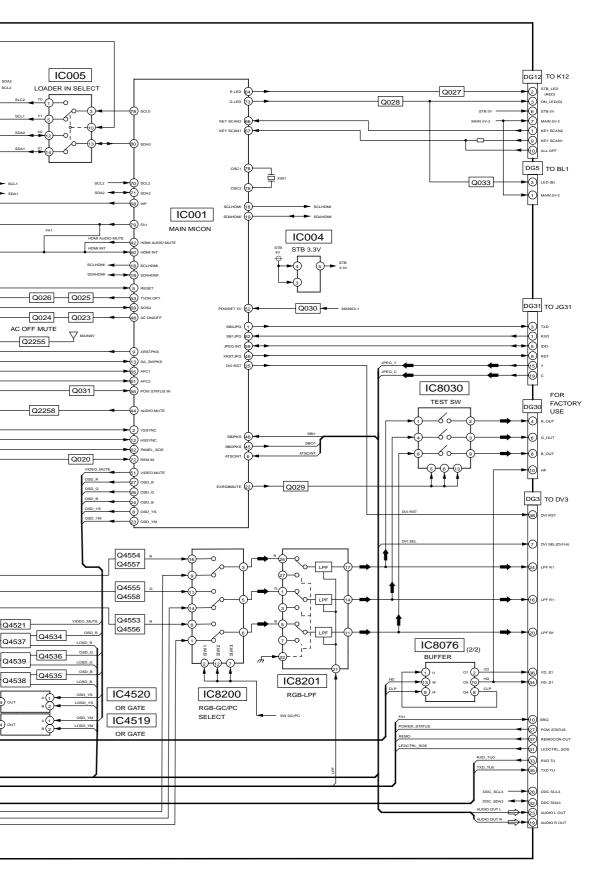






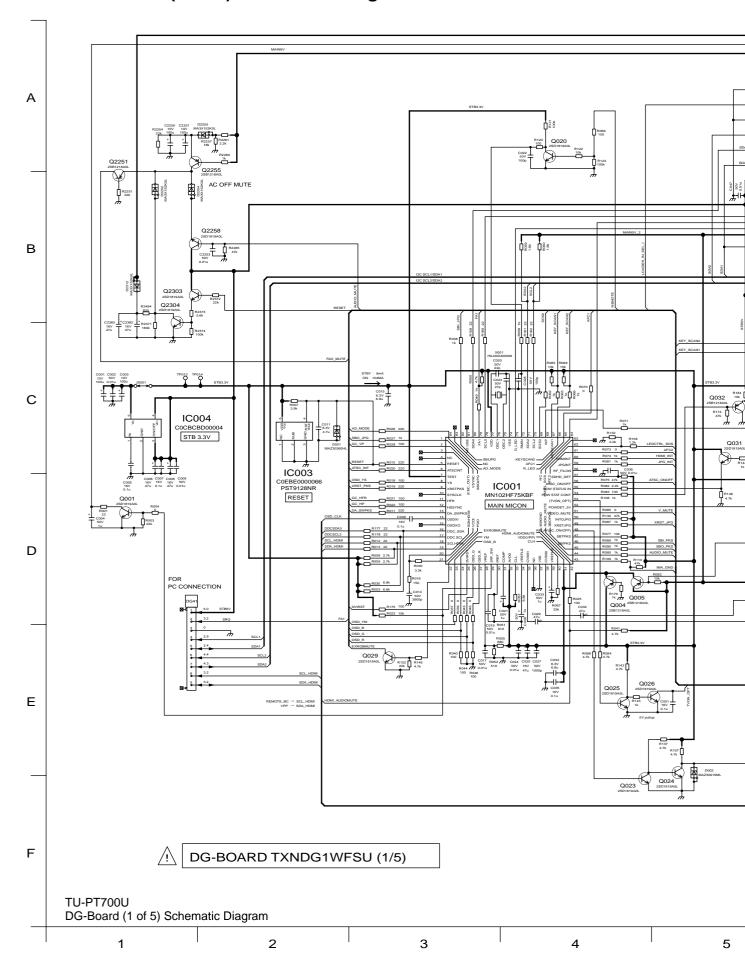


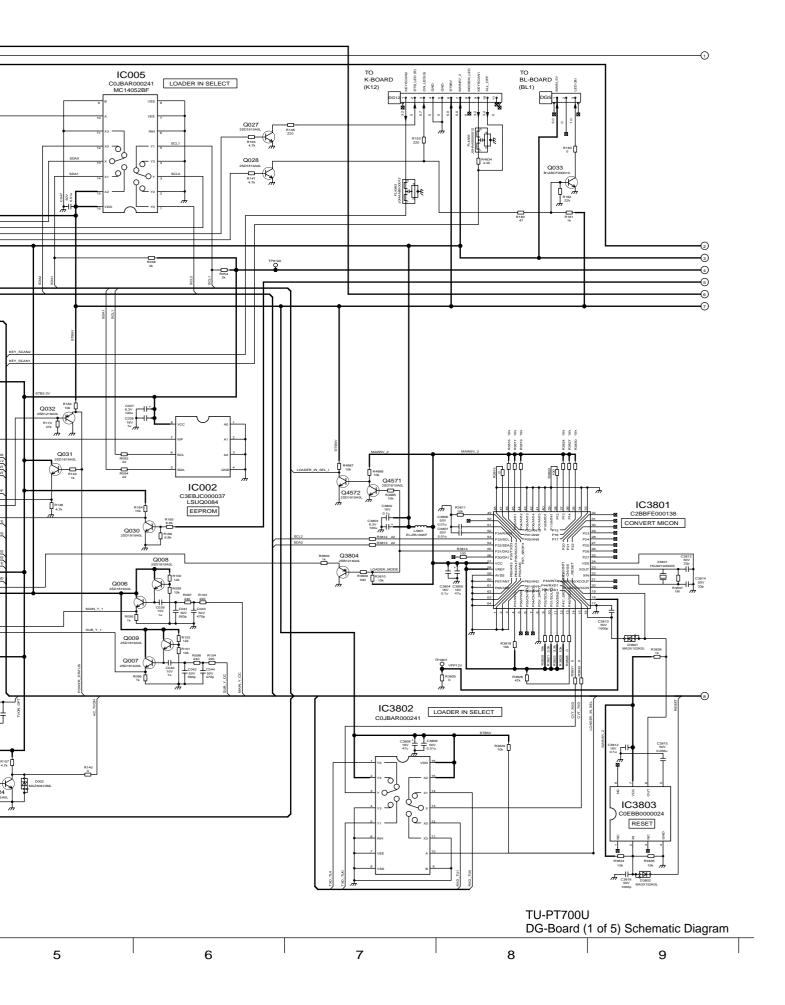




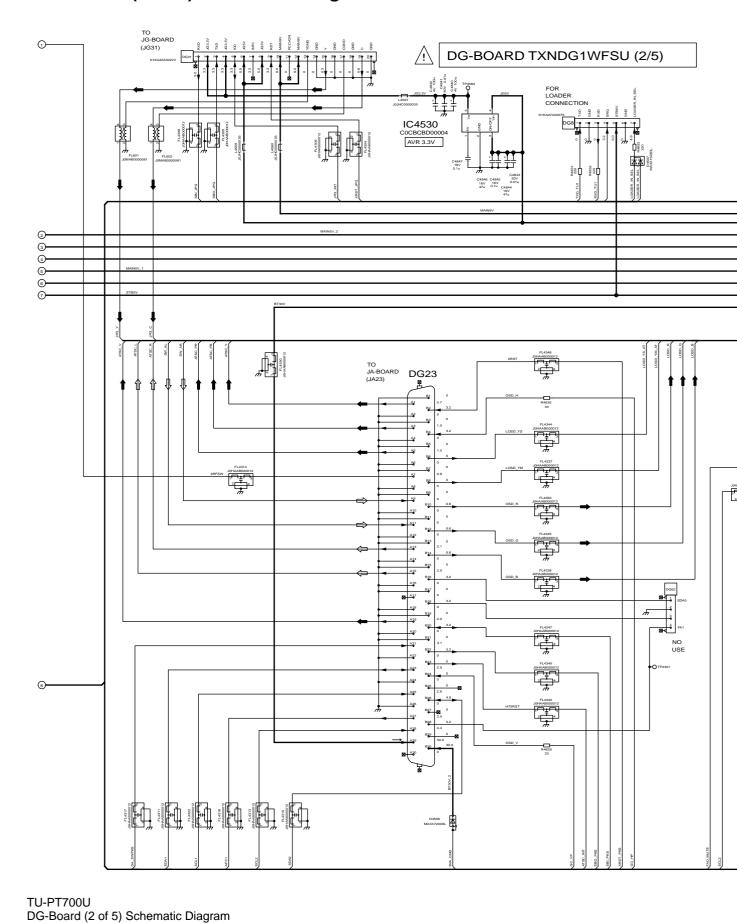
TU-PT700U DG-Board Block Diagram

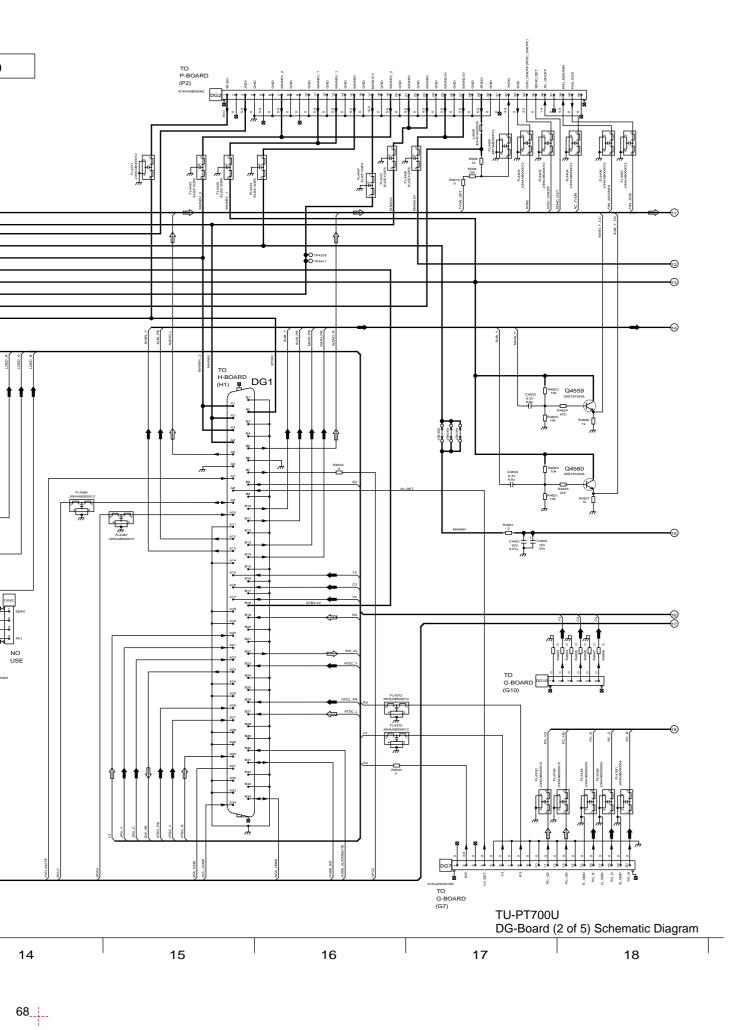
## 13.20. DG-Board (1 of 5) Schematic Diagram



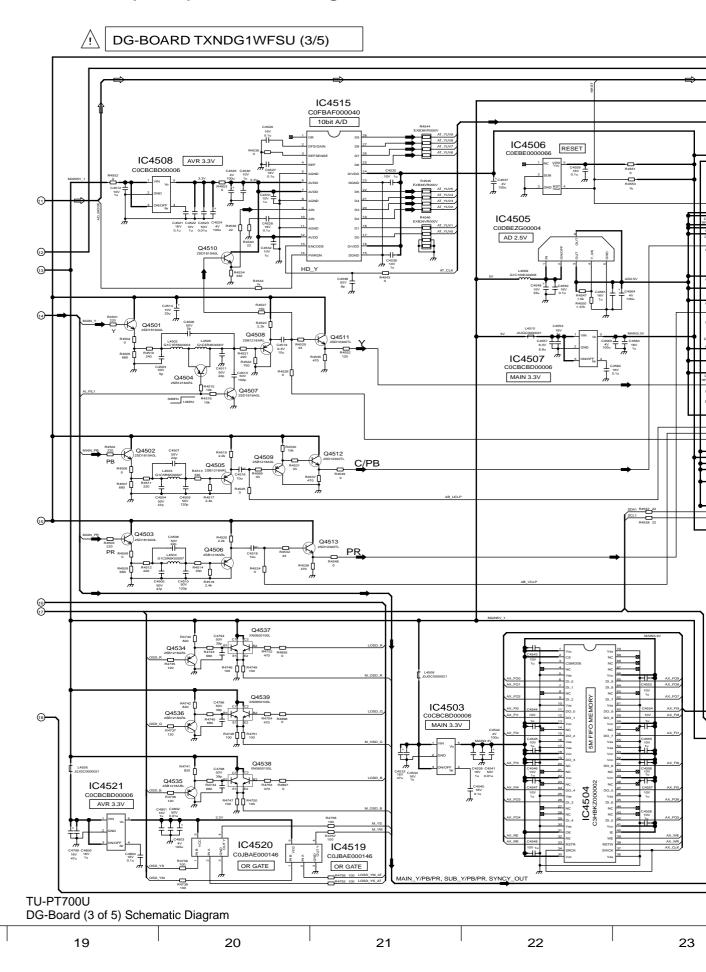


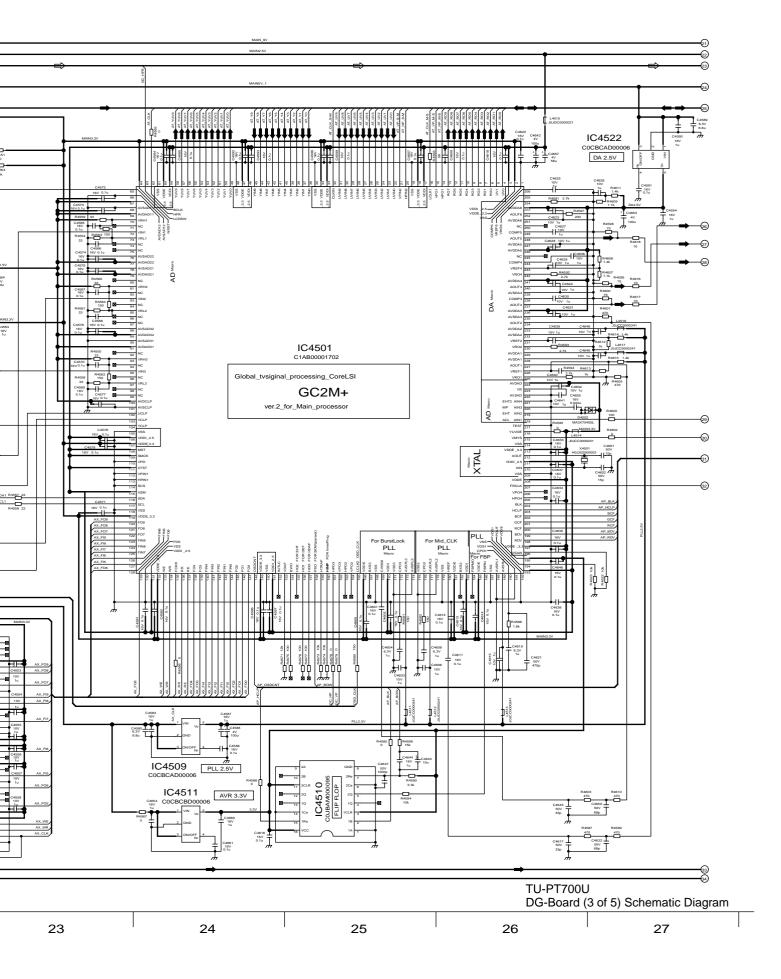
## 13.21. DG-Board (2 of 5) Schematic Diagram



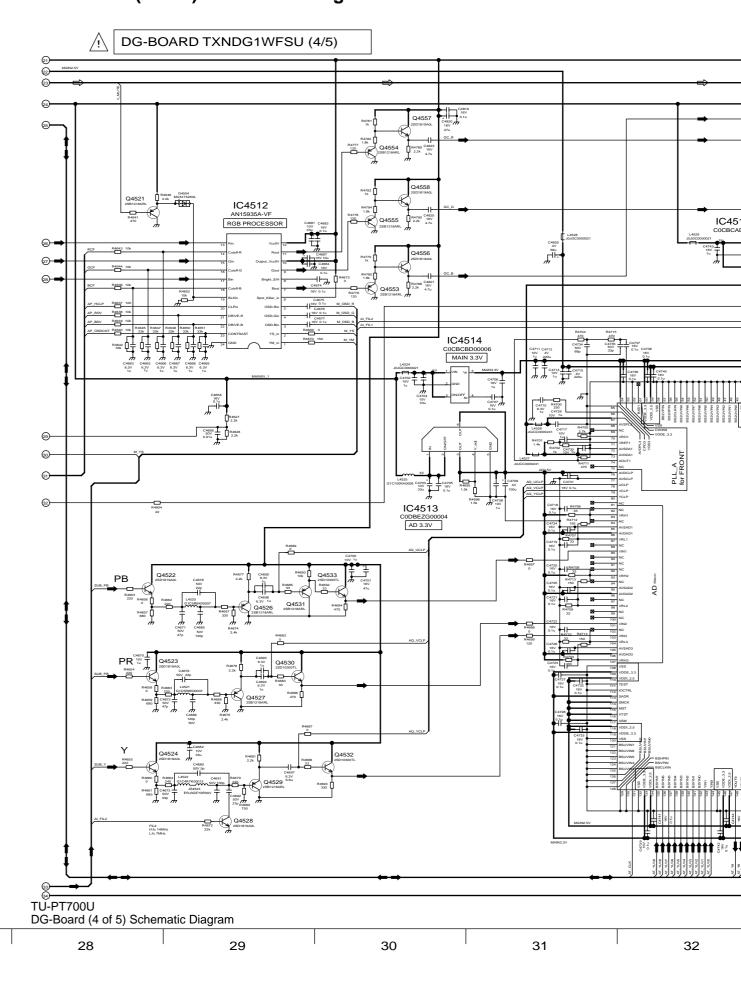


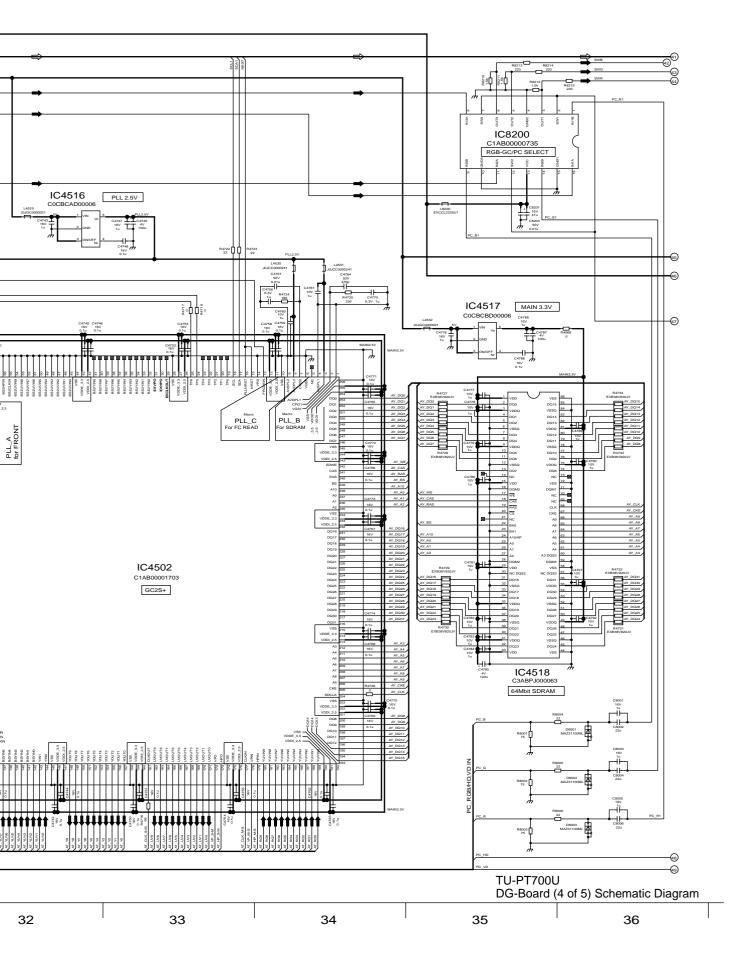
## 13.22. DG-Board (3 of 5) Schematic Diagram



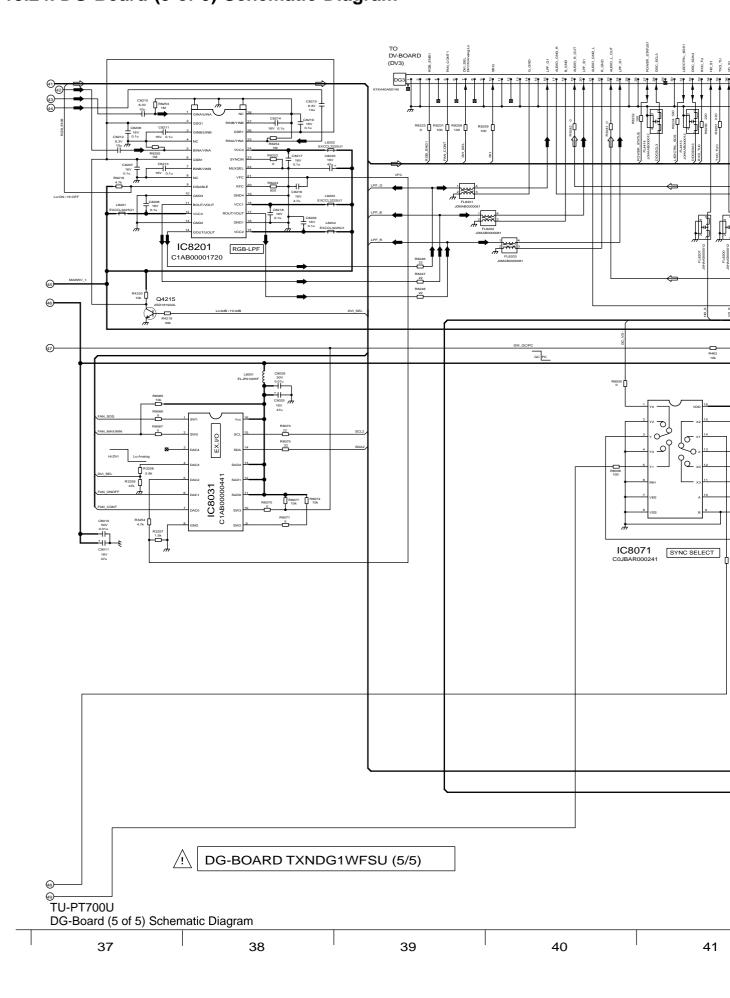


# 13.23. DG-Board (4 of 5) Schematic Diagram

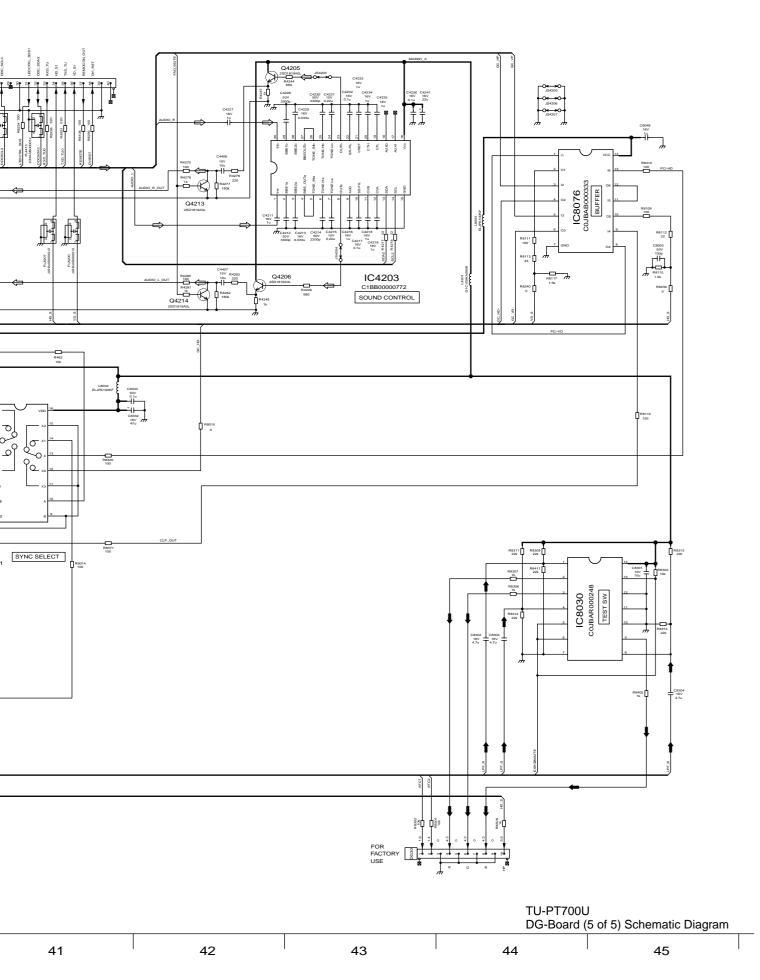




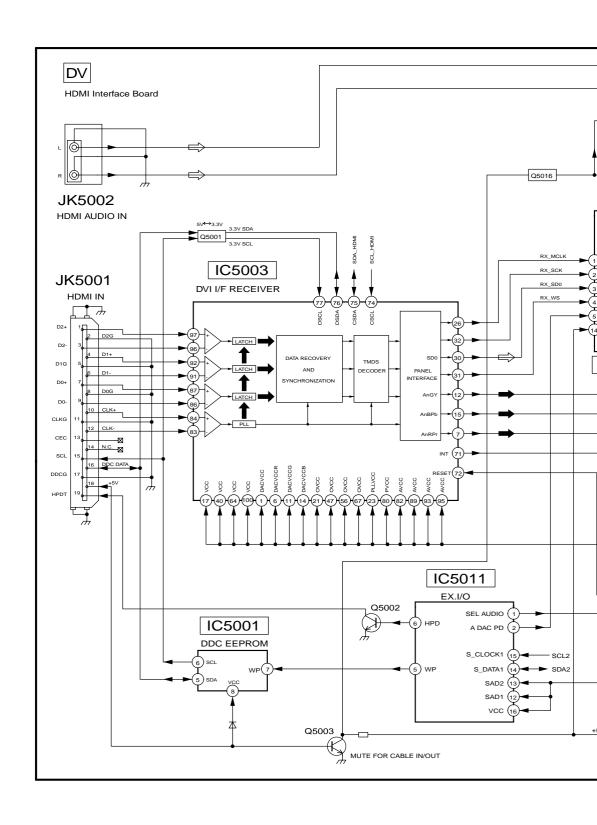
# 13.24. DG-Board (5 of 5) Schematic Diagram





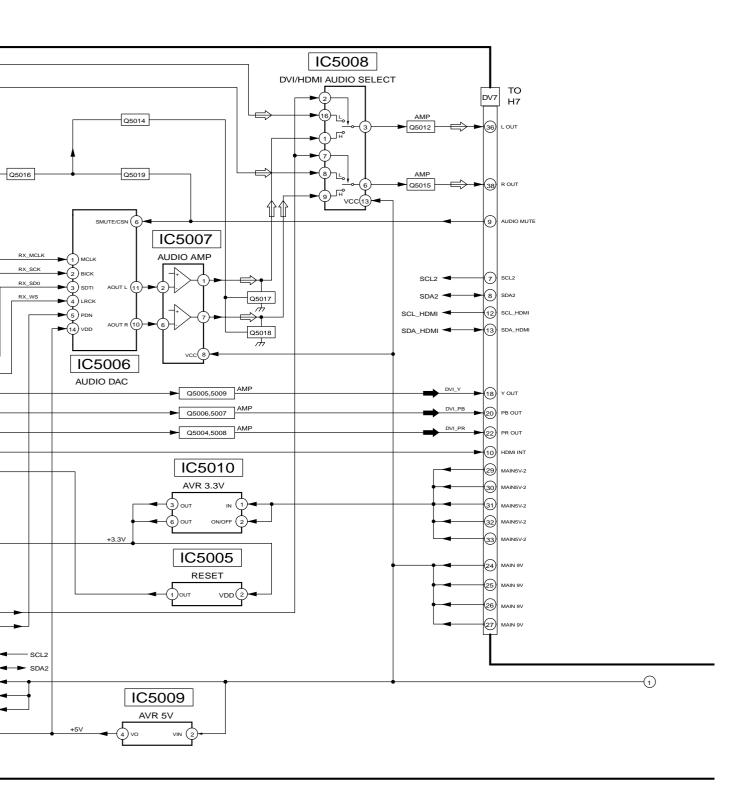


#### 13.25. DV-Board Block Diagram



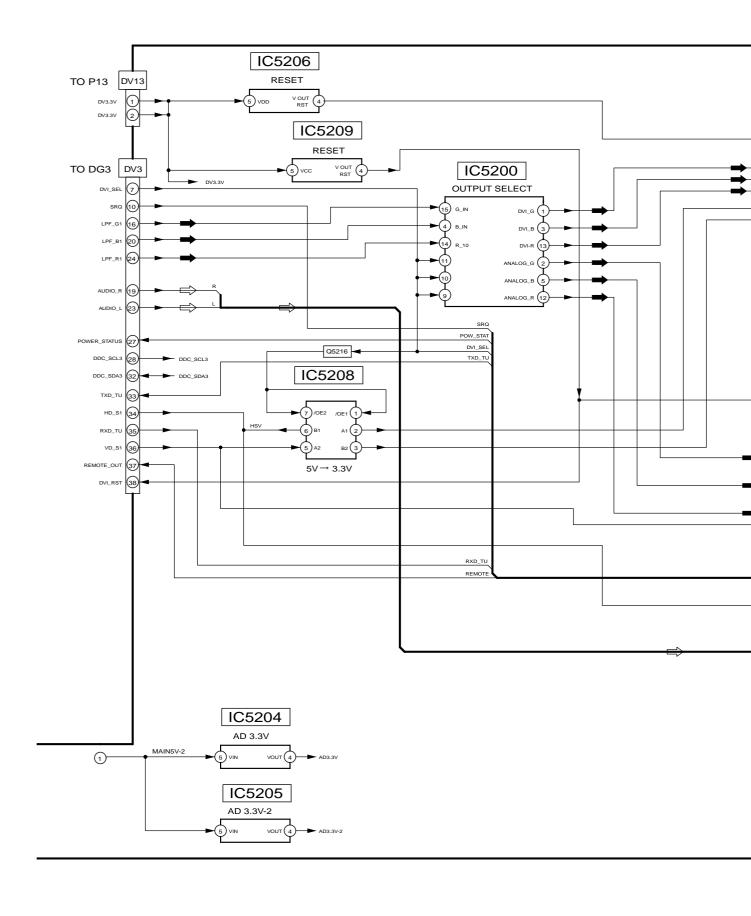
TU-PT700U DV-Board Block Diagram



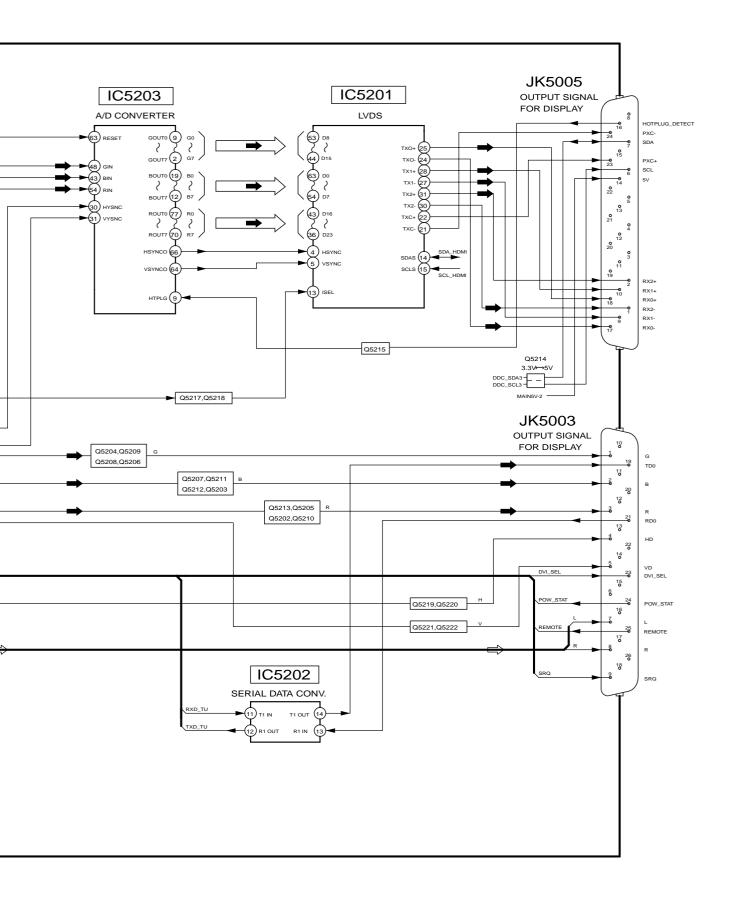


TU-PT700U DV-Board Block Diagram

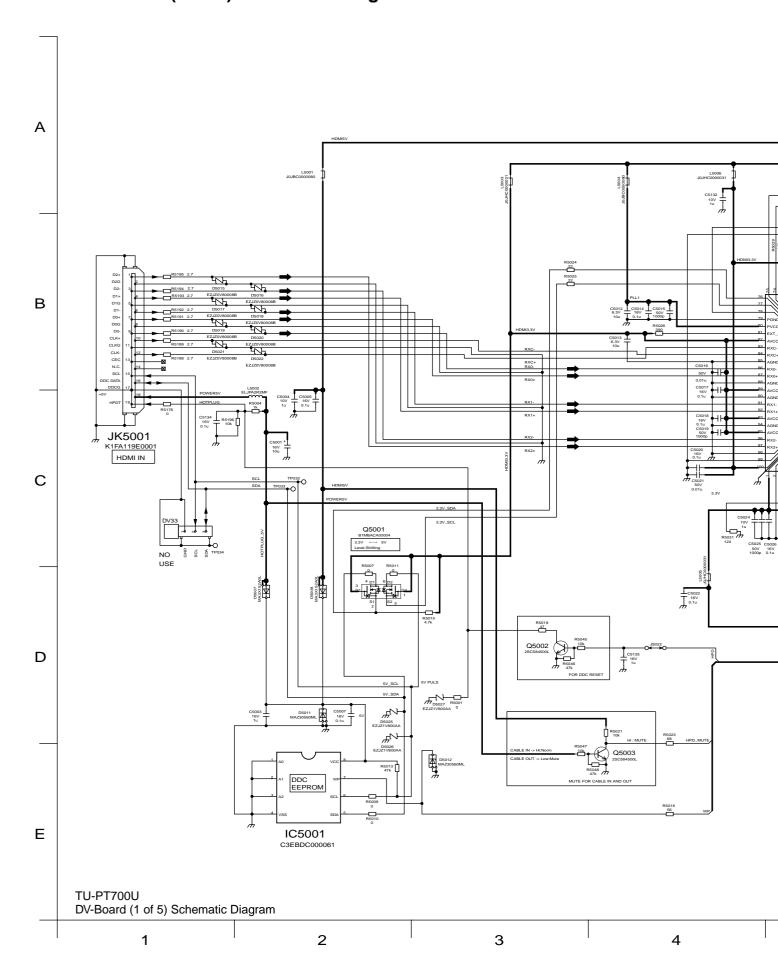




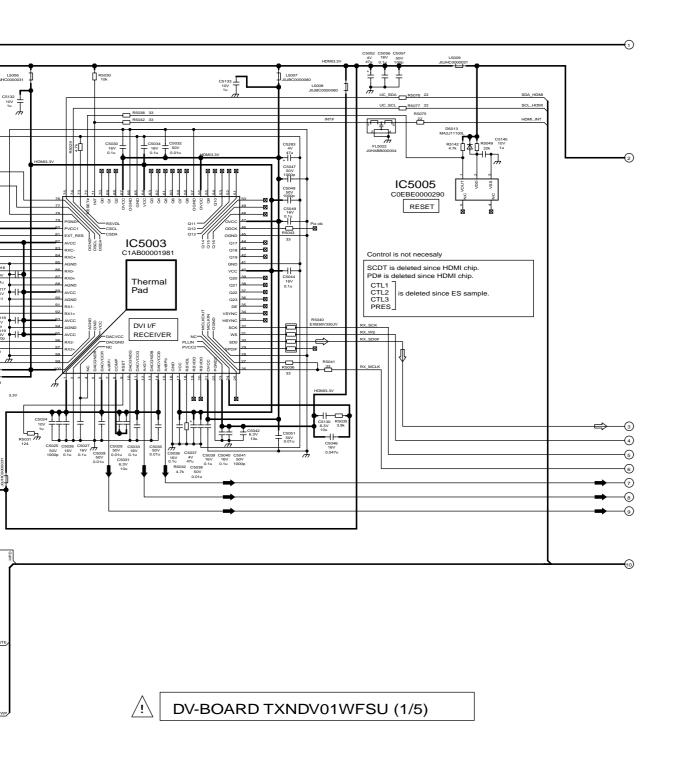




# 13.26. DV-Board (1 of 5) Schematic Diagram

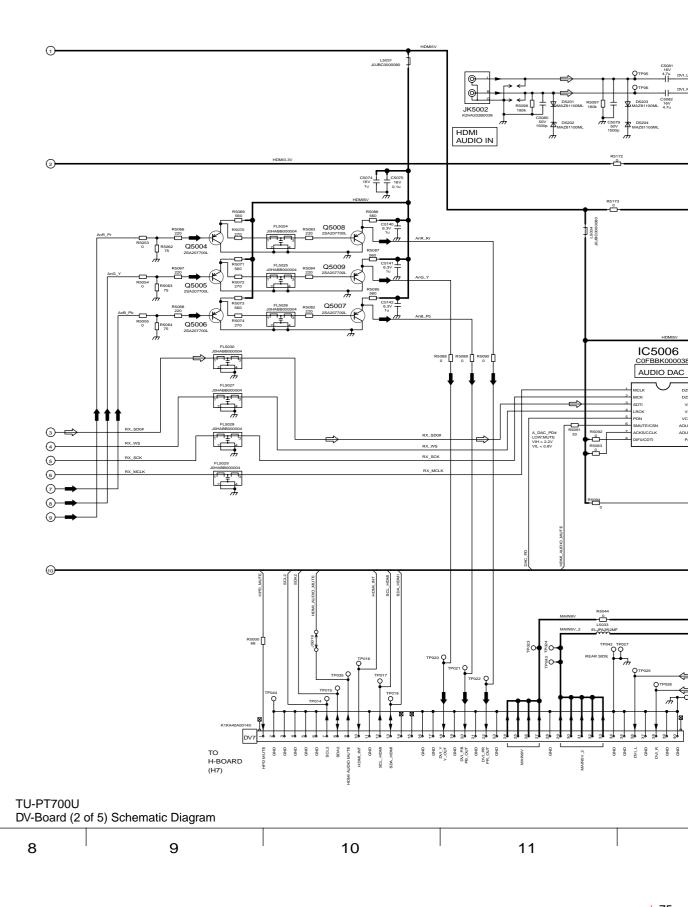




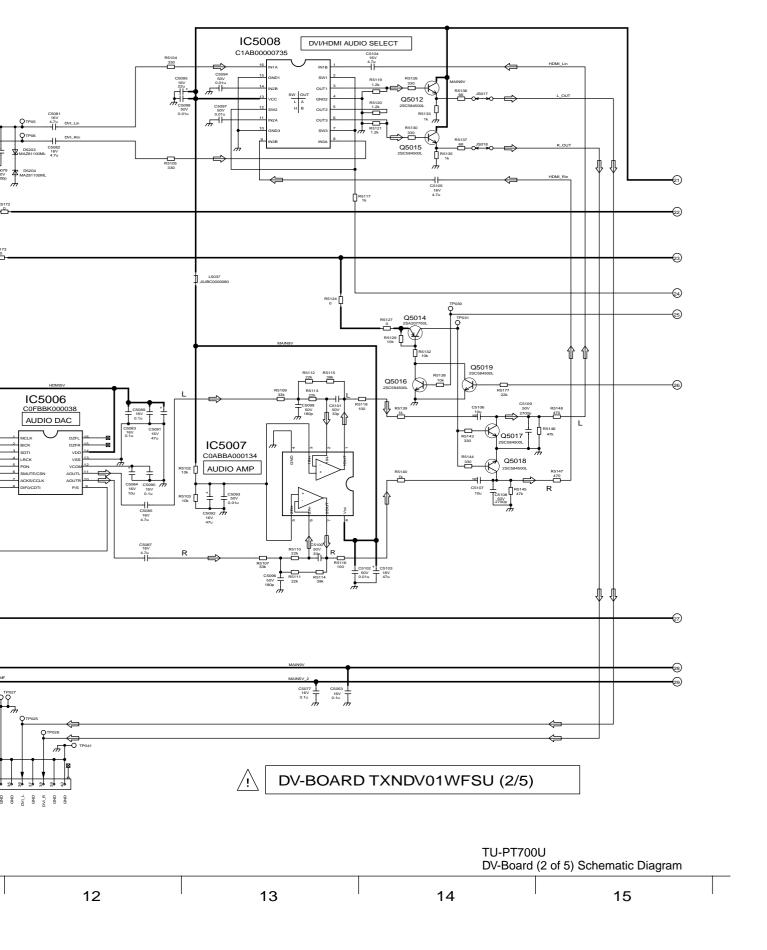




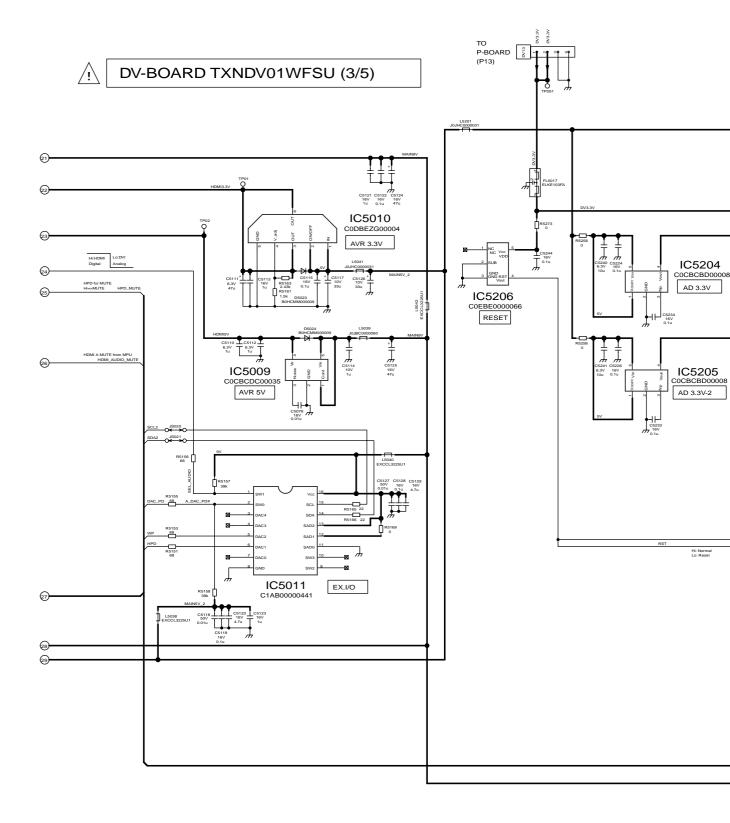
# 13.27. DV-Board (2 of 5) Schematic Diagram





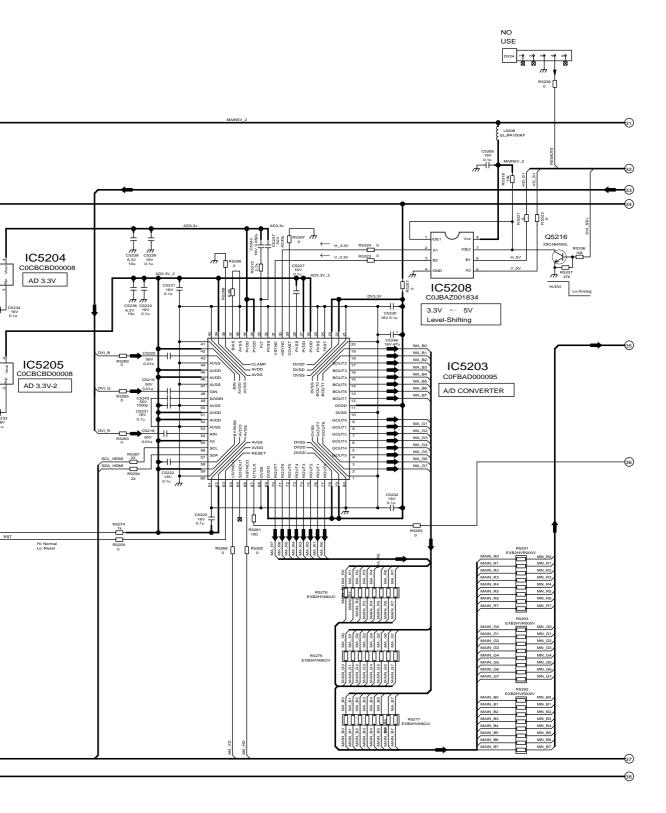


### 13.28. DV-Board (3 of 5) Schematic Diagram



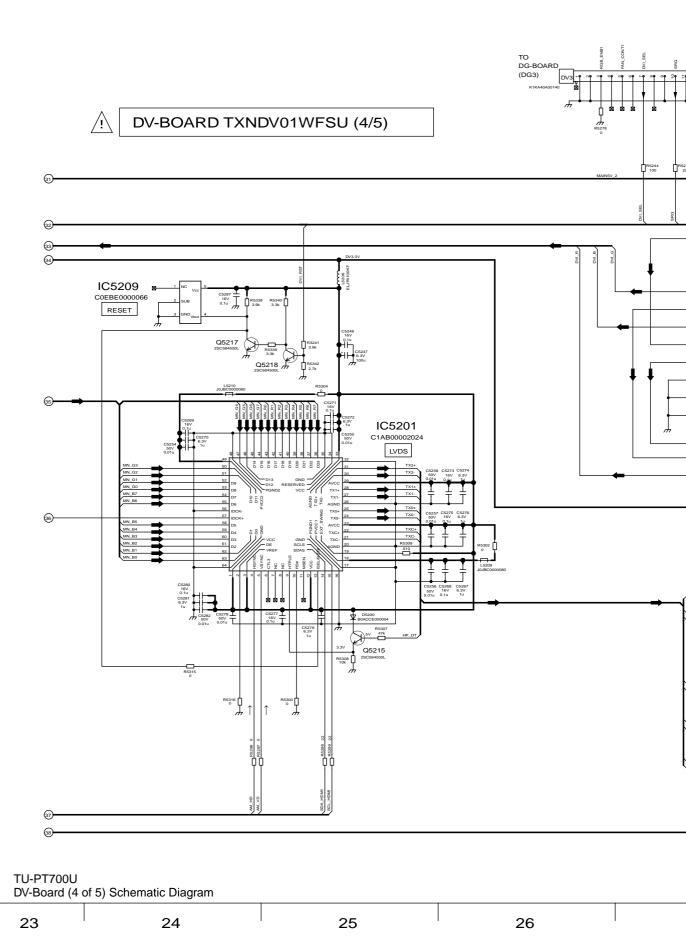




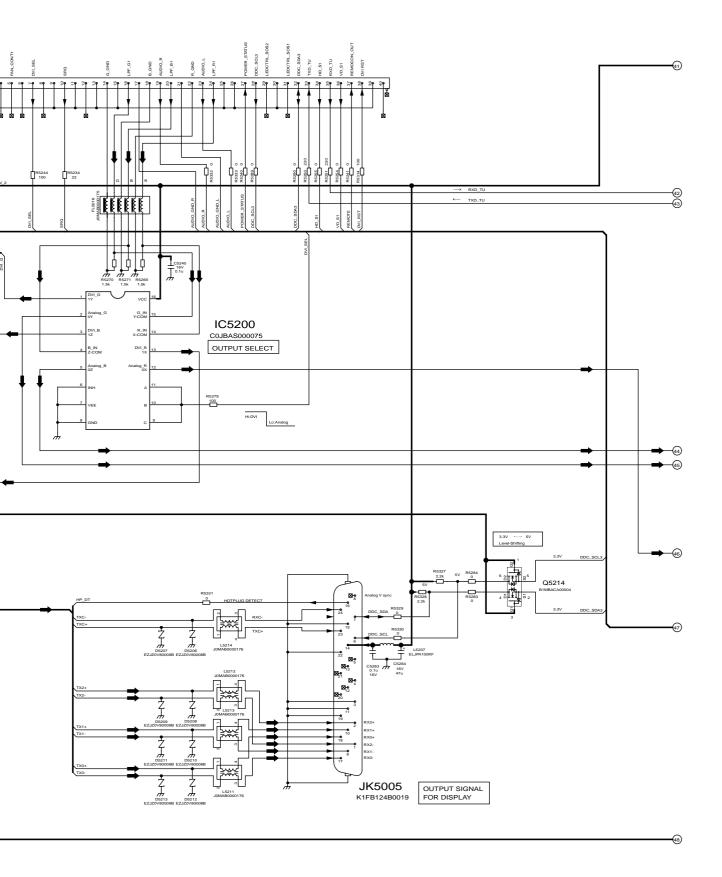




## 13.29. DV-Board (4 of 5) Schematic Diagram

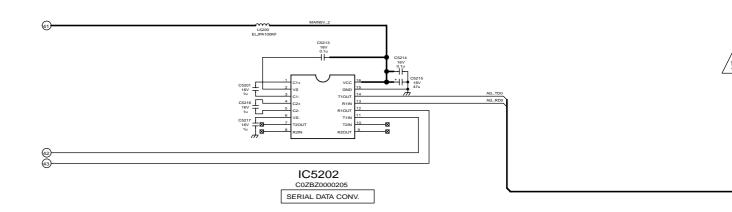


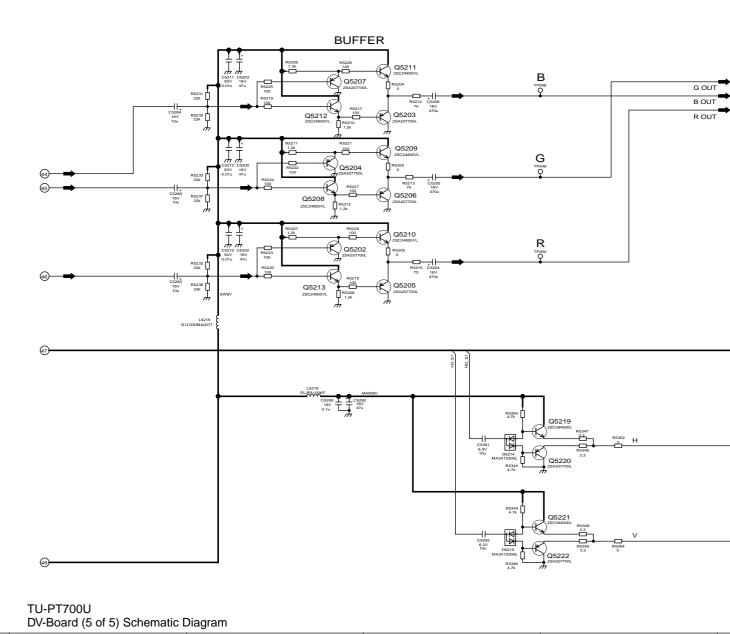






## 13.30. DV-Board (5 of 5) Schematic Diagram

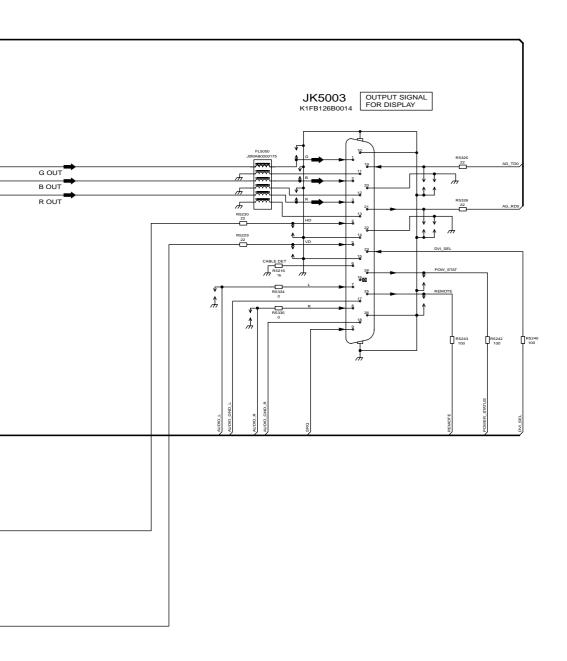






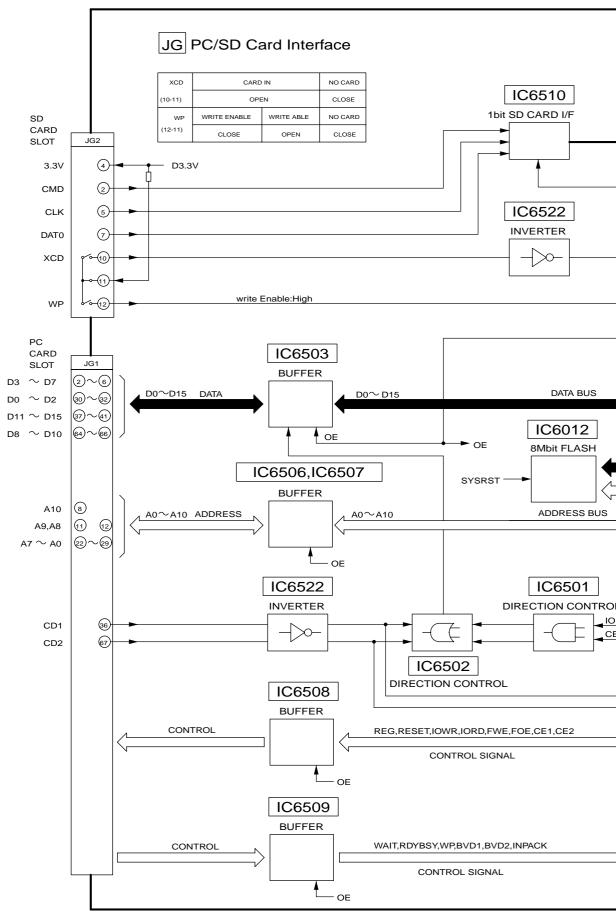
### <u>\i</u>\

### DV-BOARD TXNDV01WFSU (5/5)



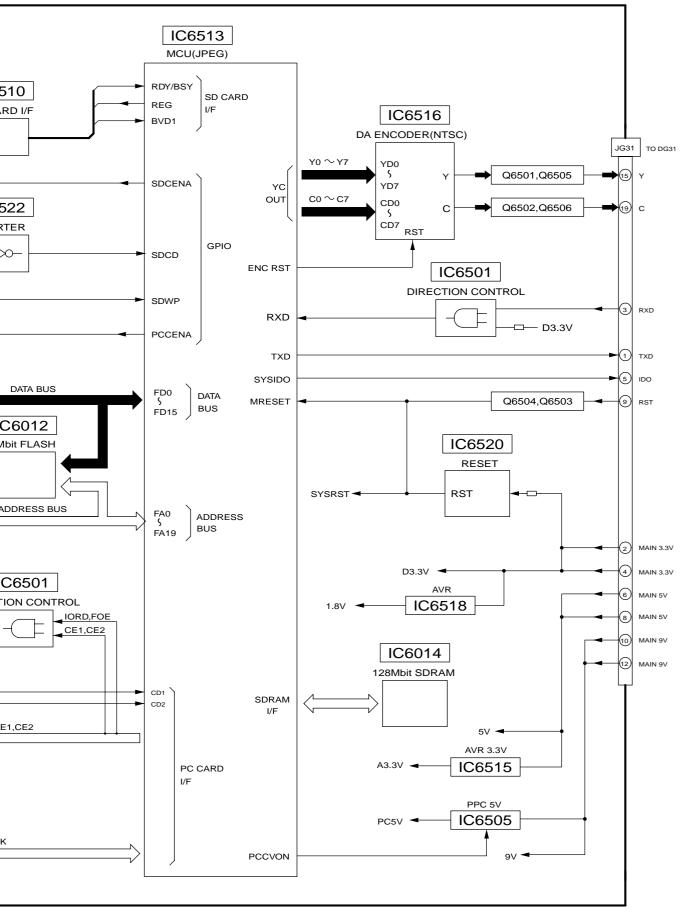


### 13.31. JG-Board Block Diagram



TU-PT700U JG-Board Block Diagram

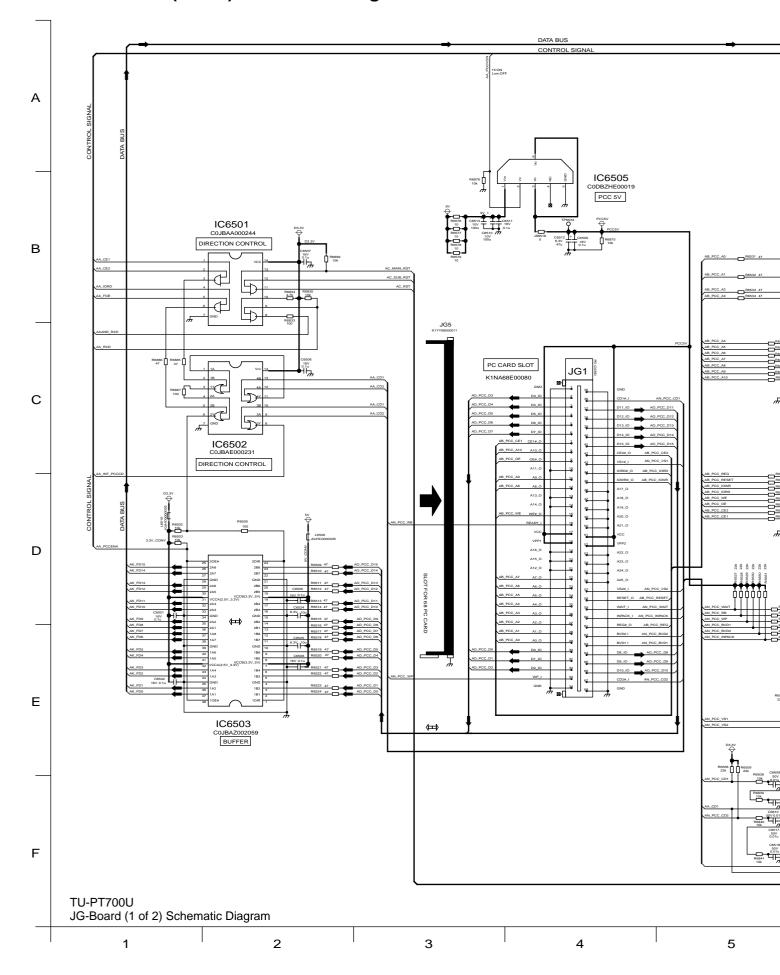




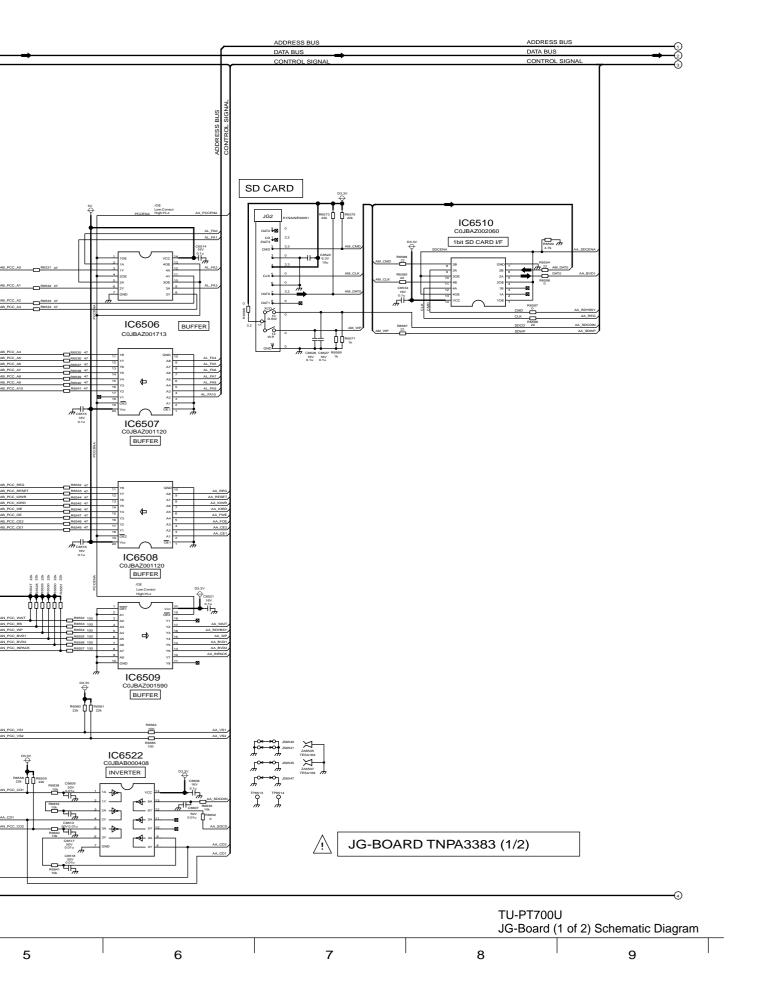
TU-PT700U JG-Board Block Diagram

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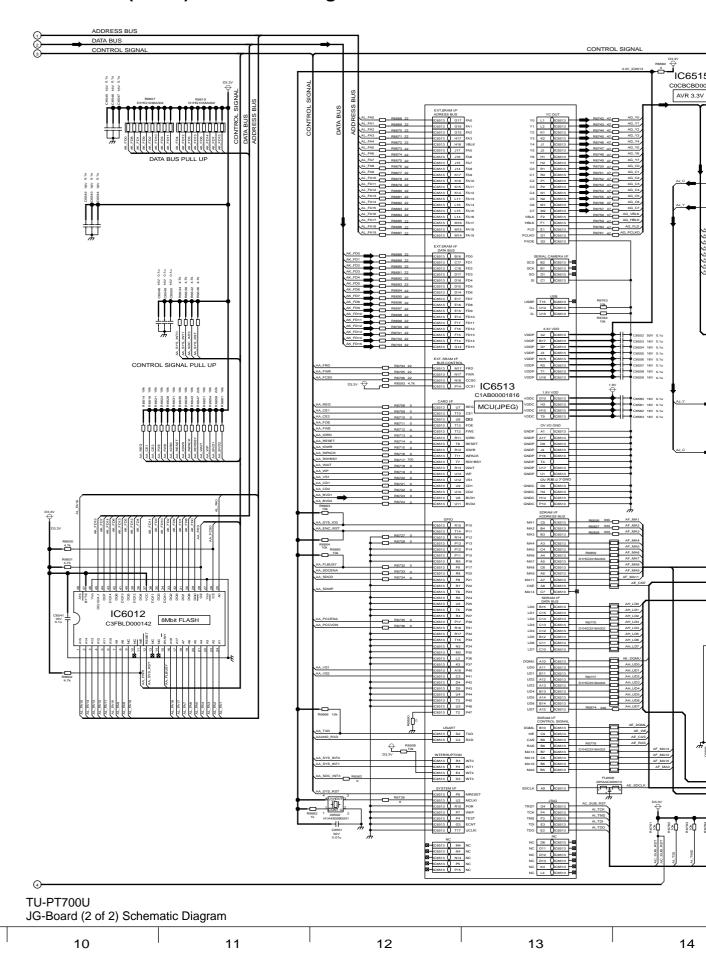
## 13.32. JG-Board (1 of 2) Schematic Diagram

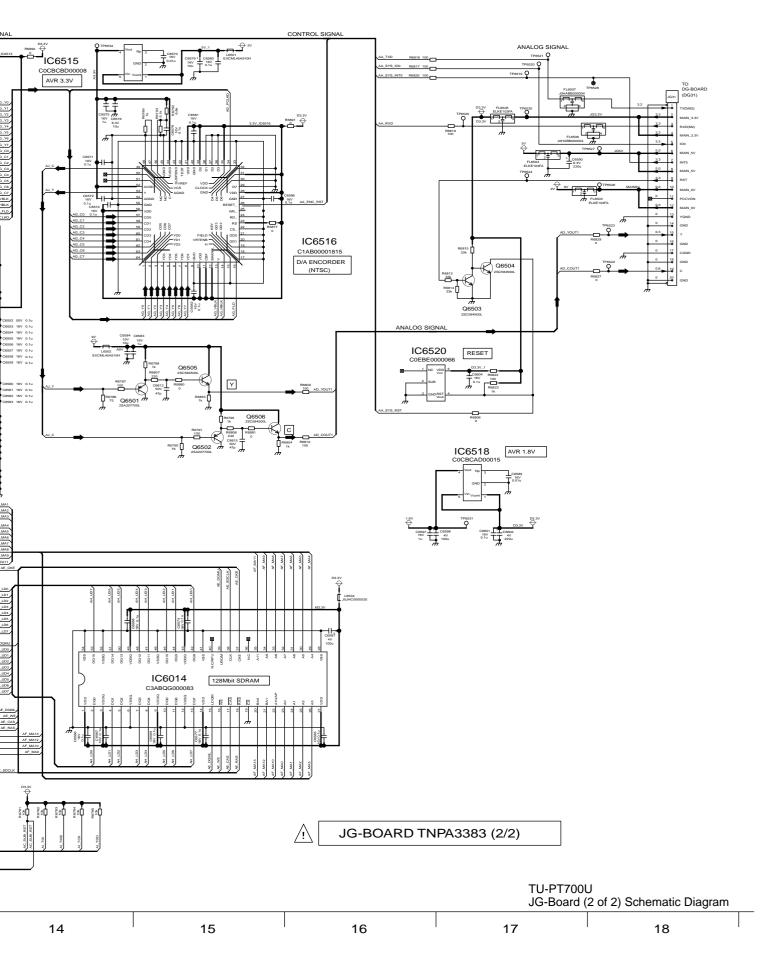






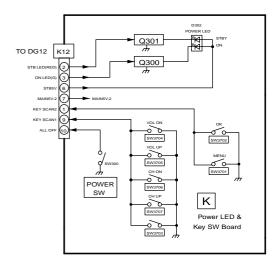
### 13.33. JG-Board (2 of 2) Schematic Diagram

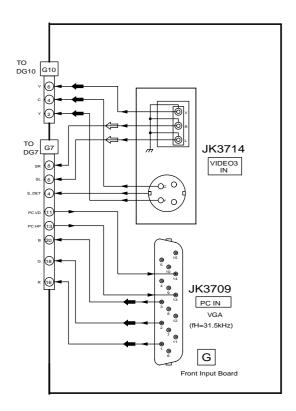




TO DG5

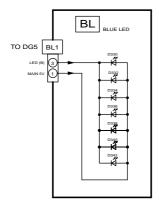
## 13.34. G, K and BL-Board Block Diagram





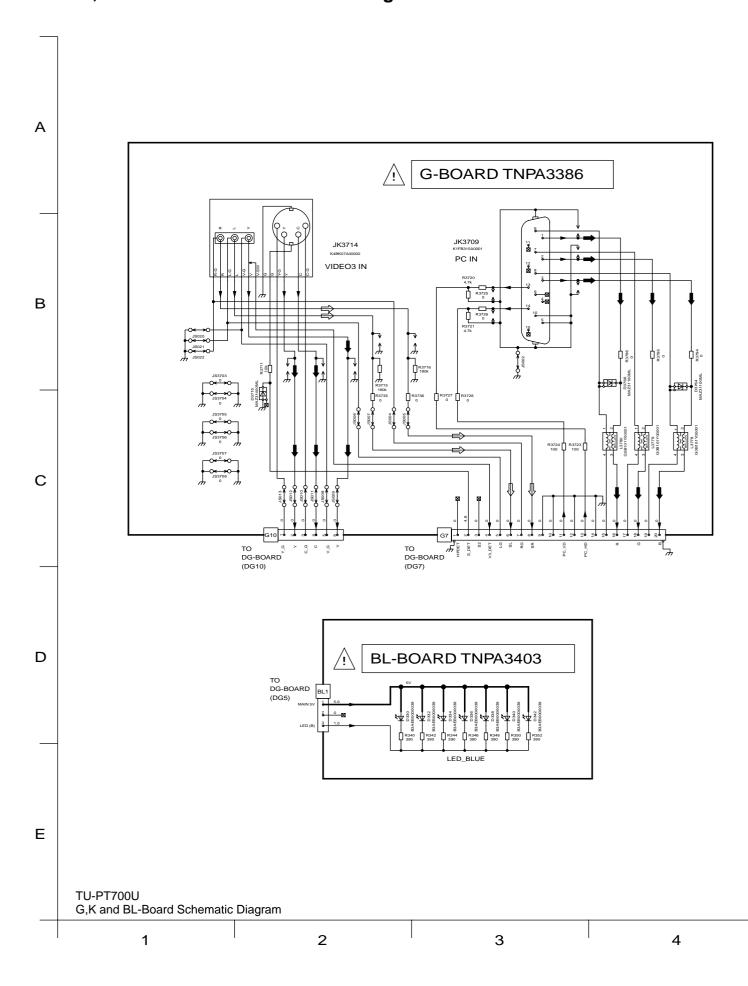
TU-PT700U G,K and BL-Board Block Diagram



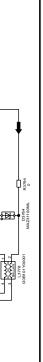


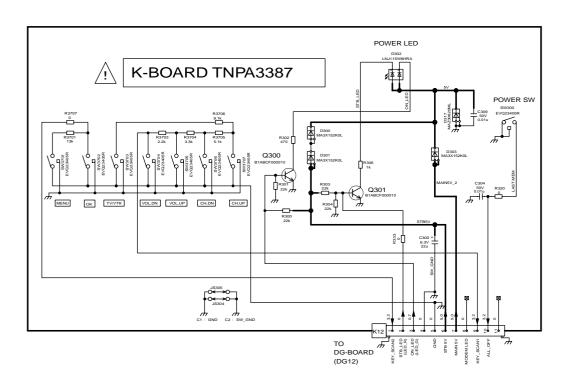
TU-PT700U G,K and BL-Board Block Diagram

## 13.35. G, K and BL-Board Schematic Diagram







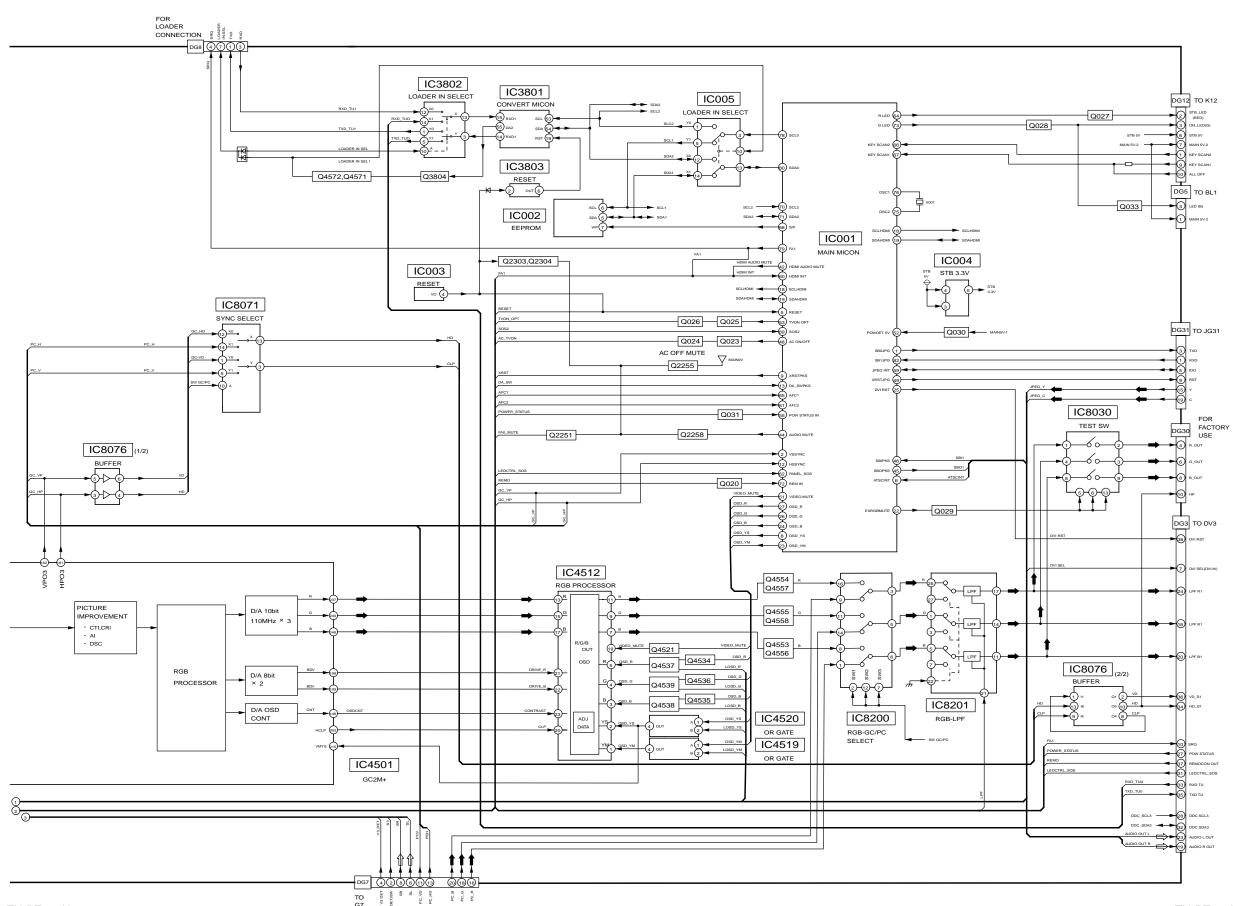


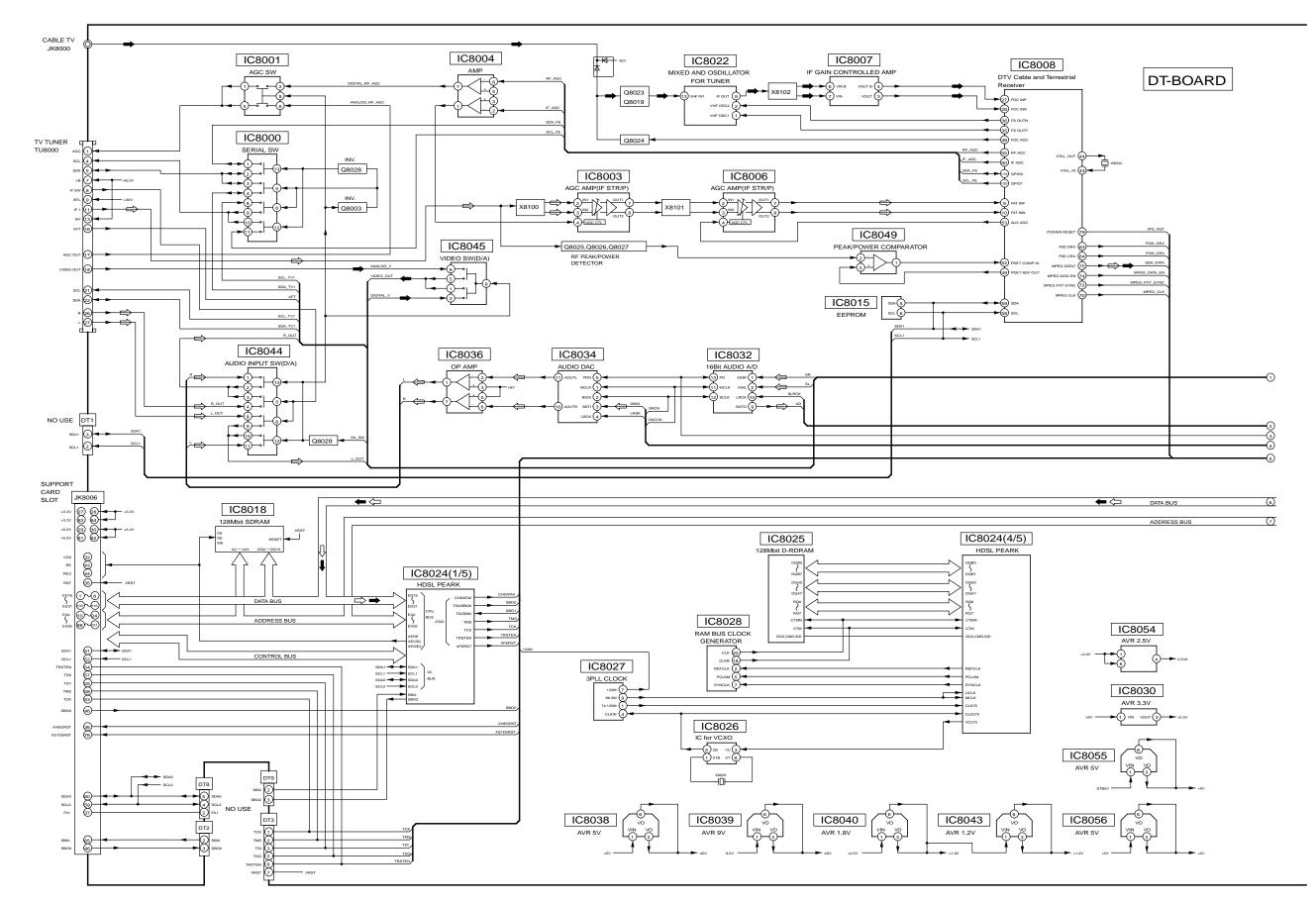
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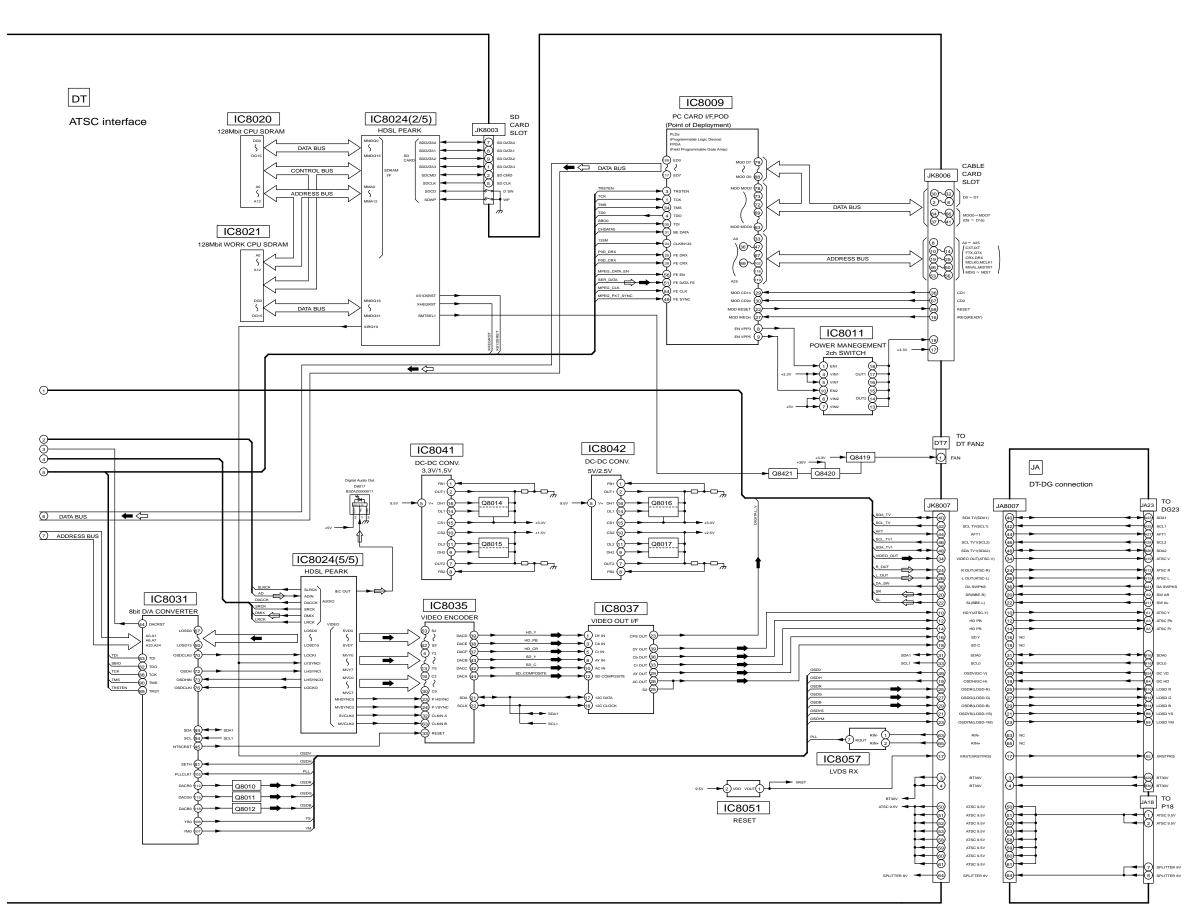
TU-PT700U G,K and BL-Board Schematic Diagram

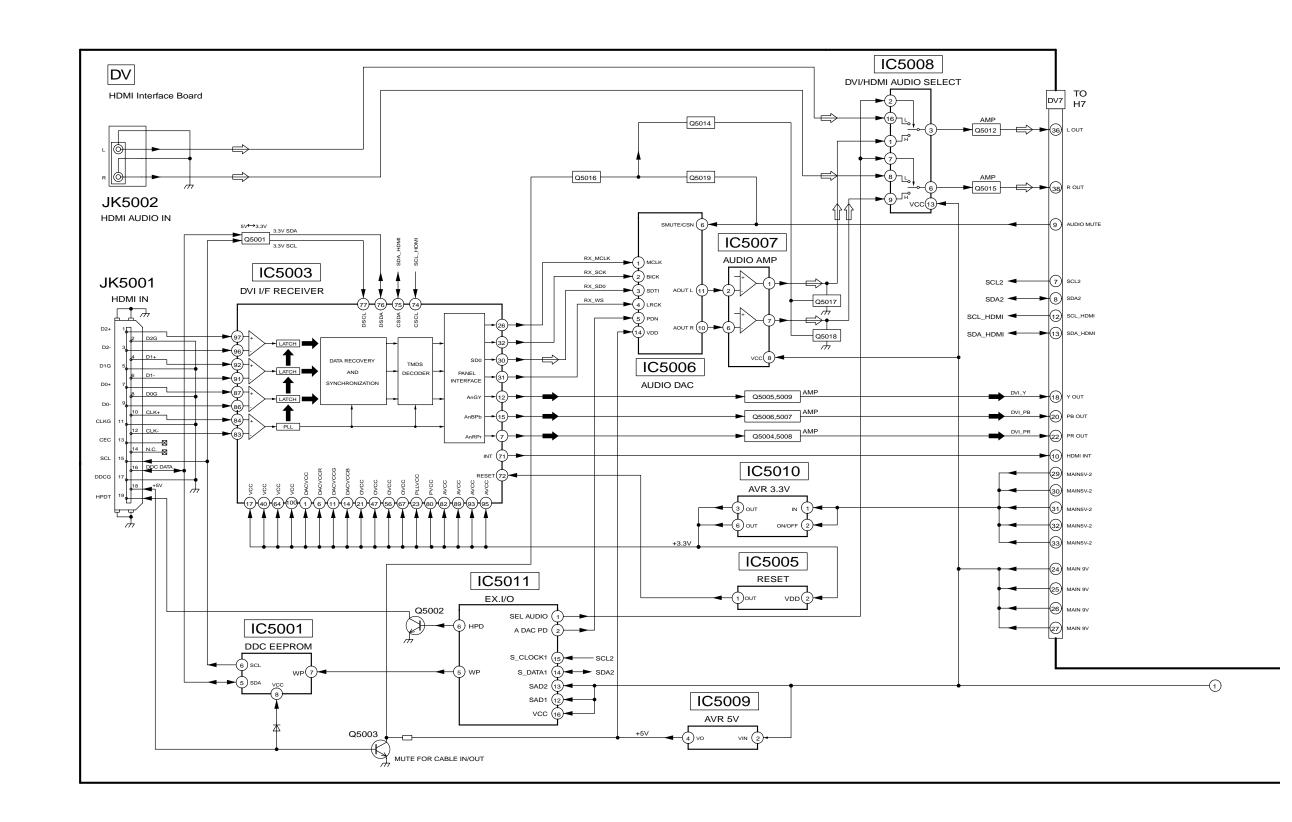
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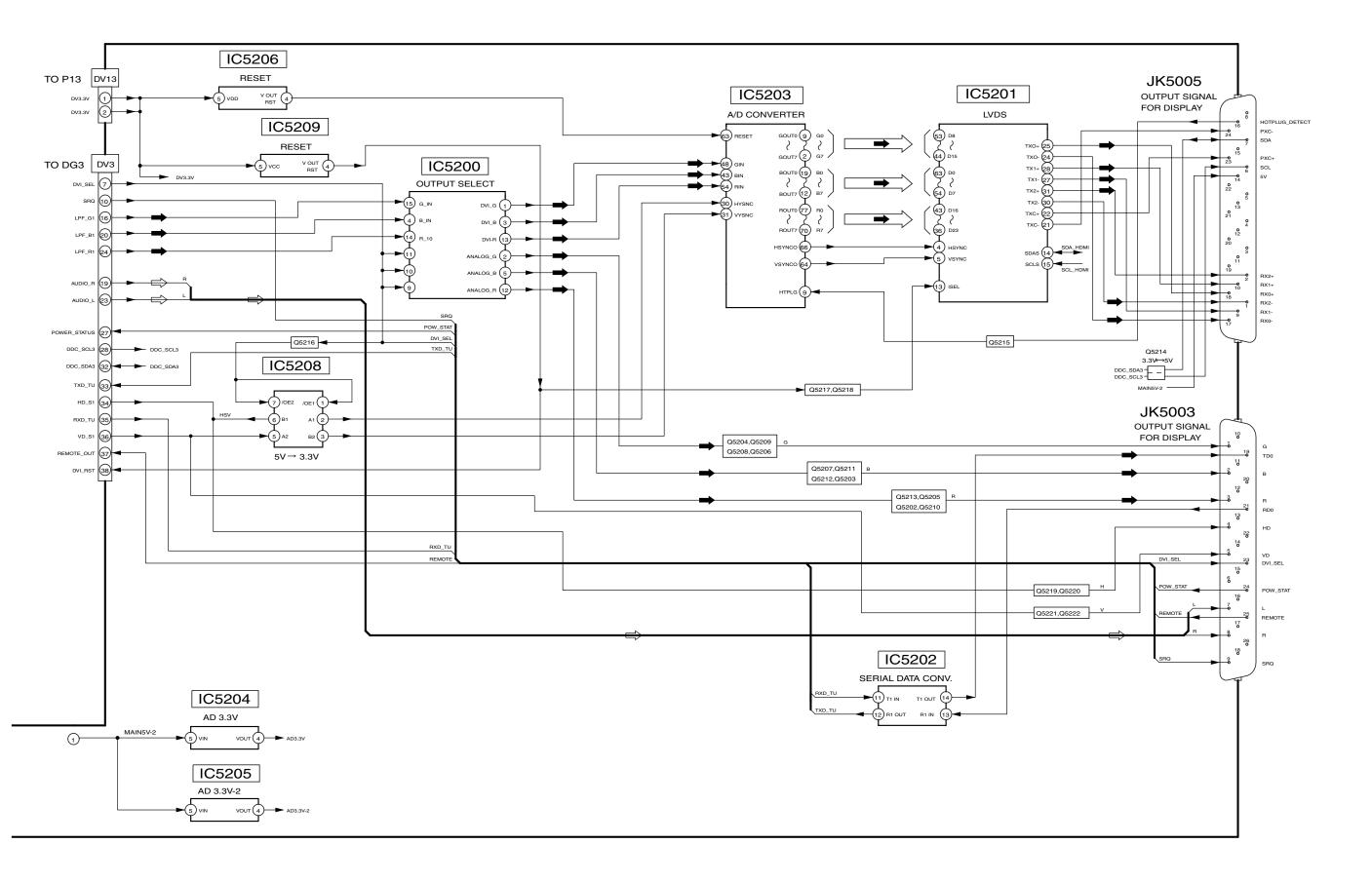
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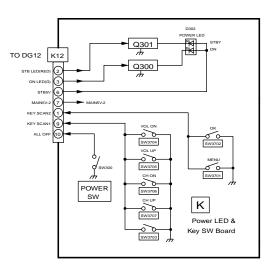


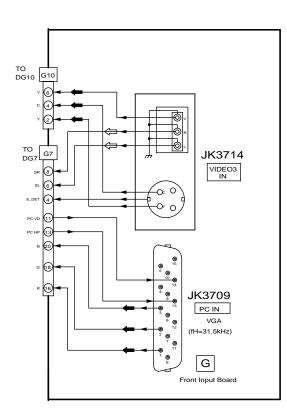


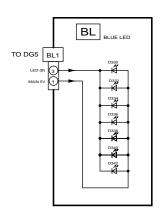


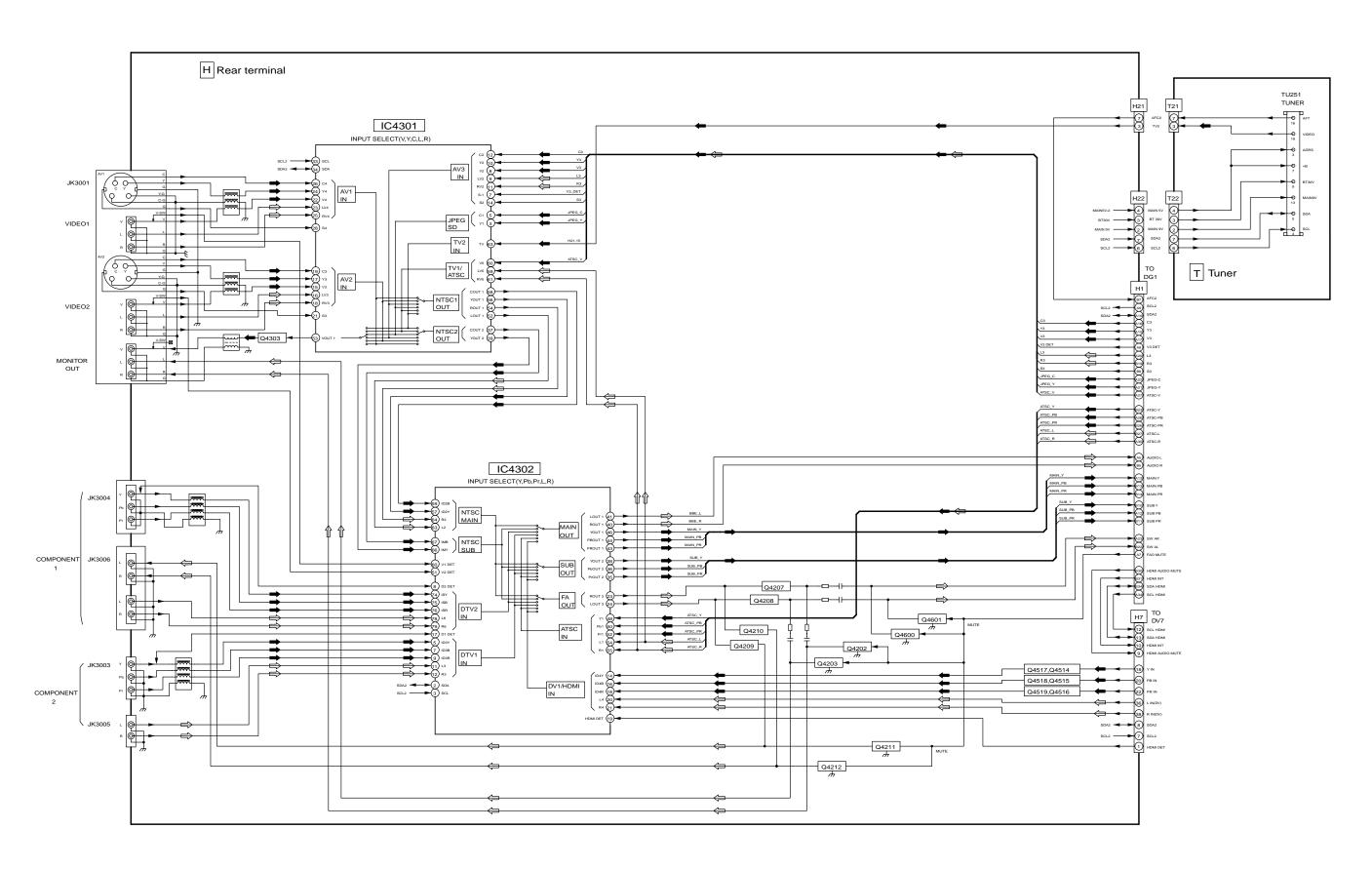


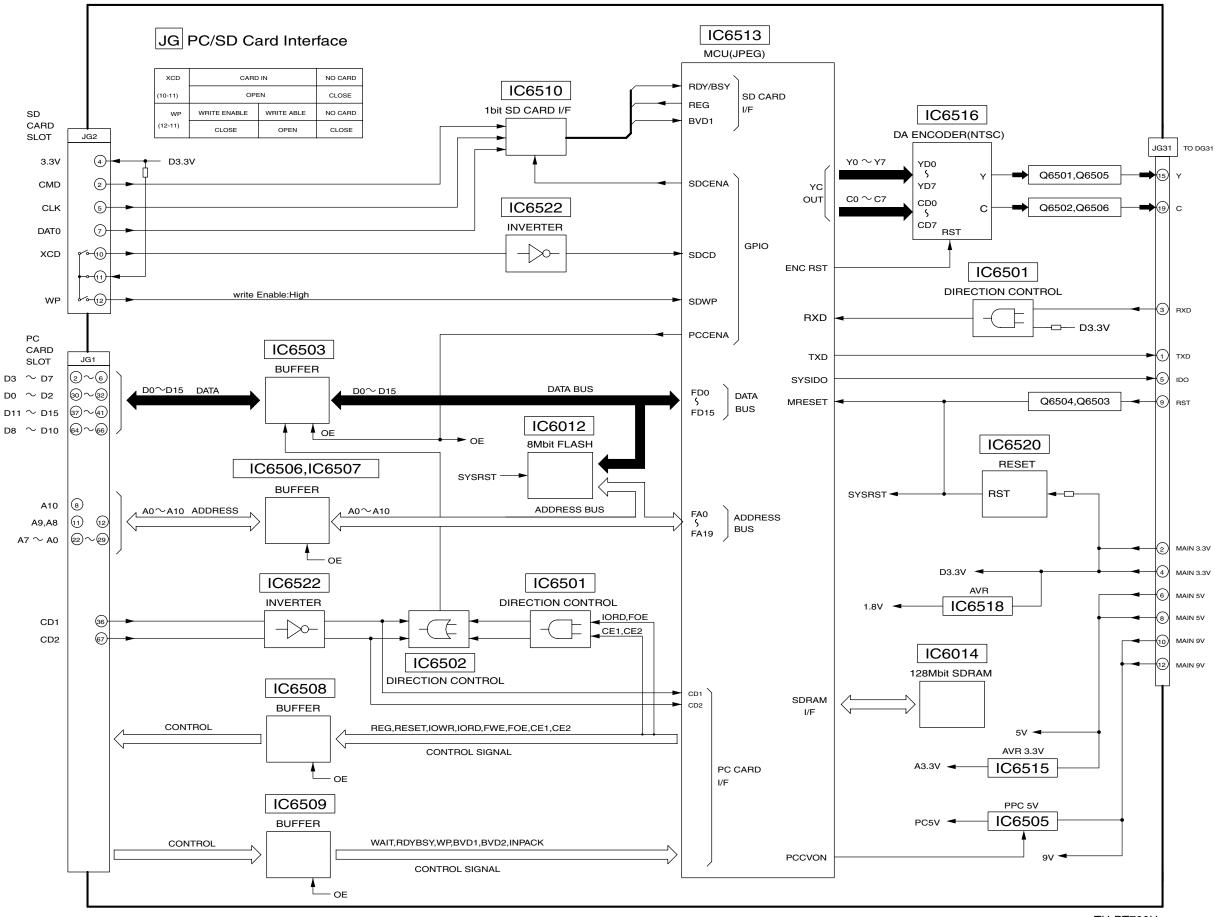


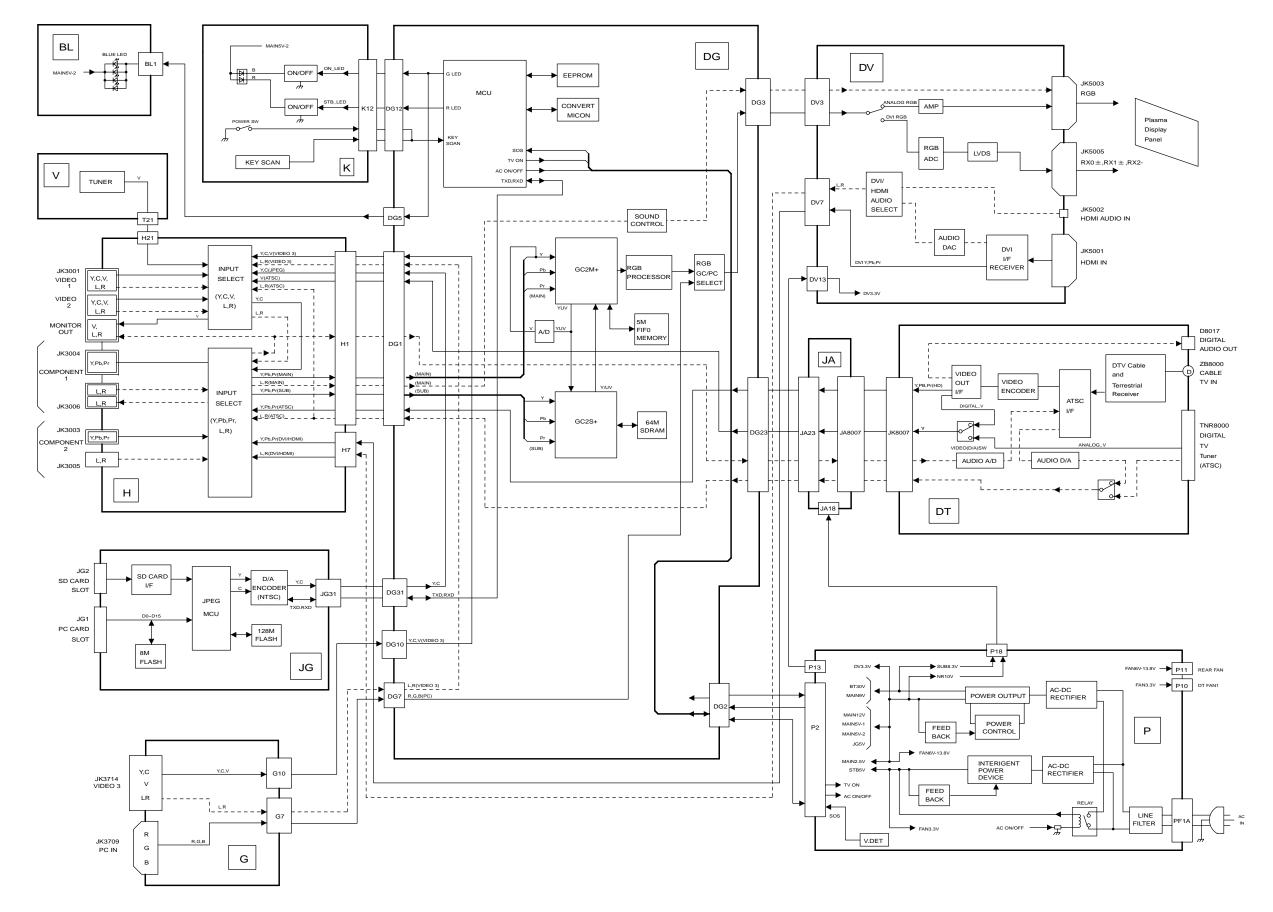


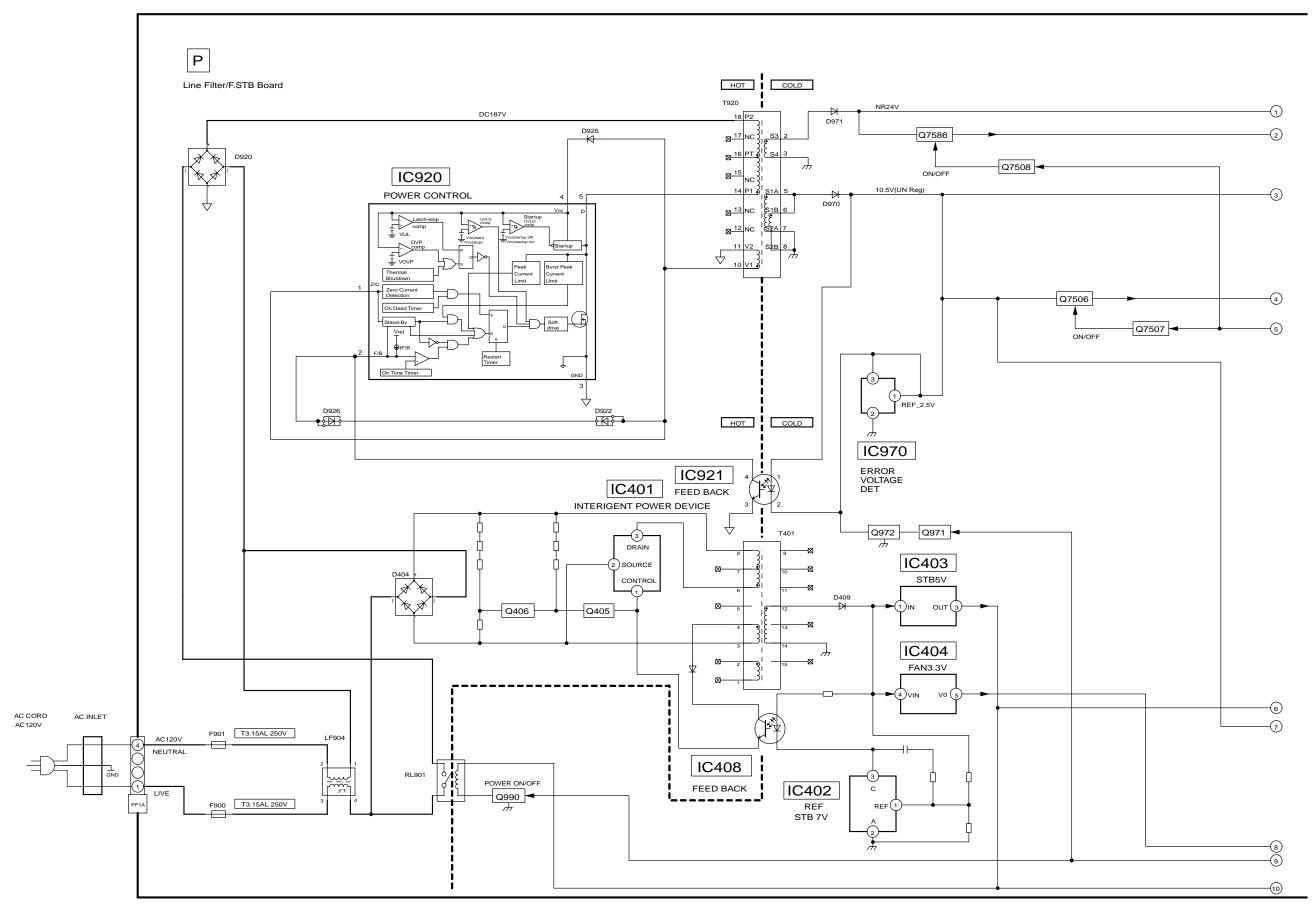


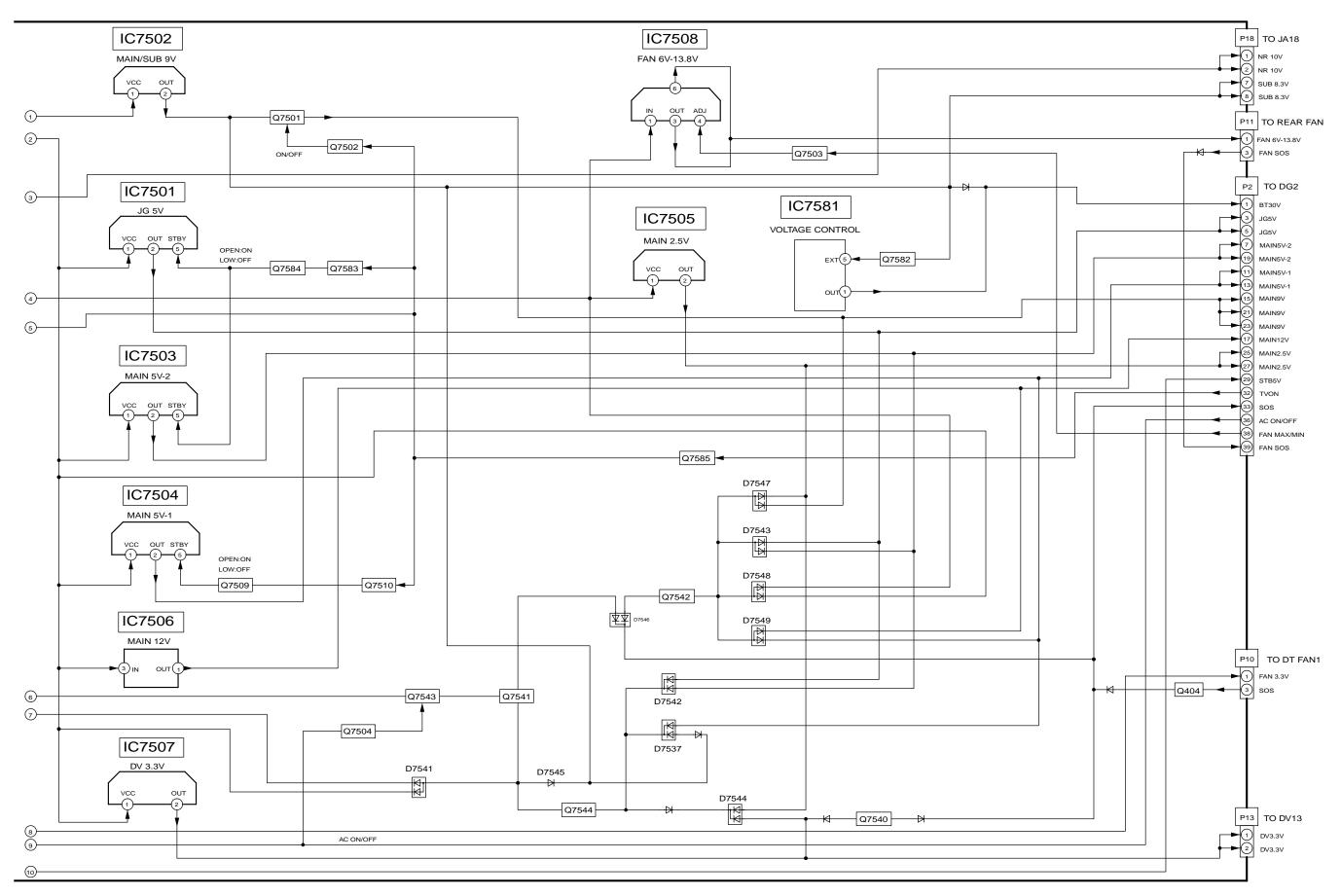


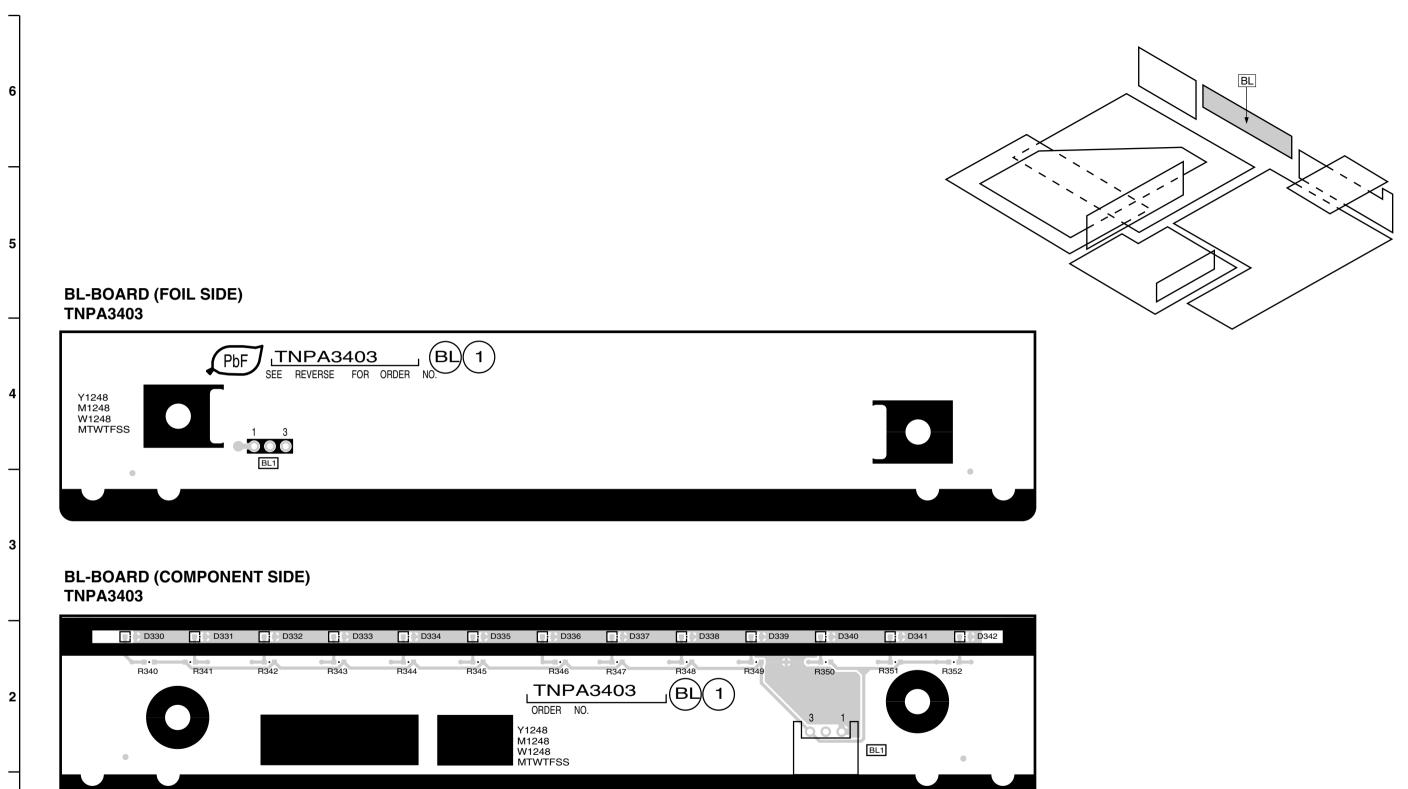






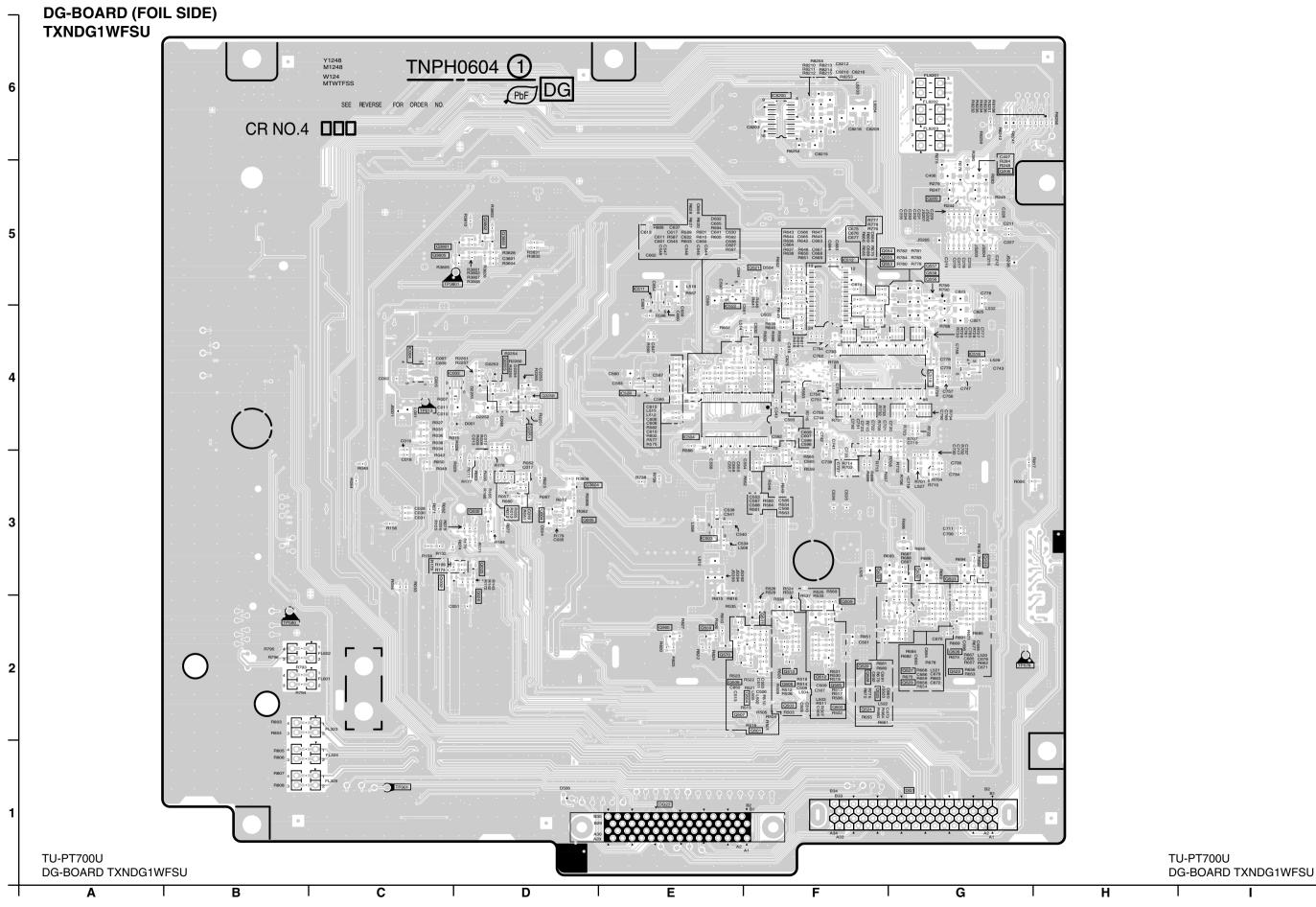


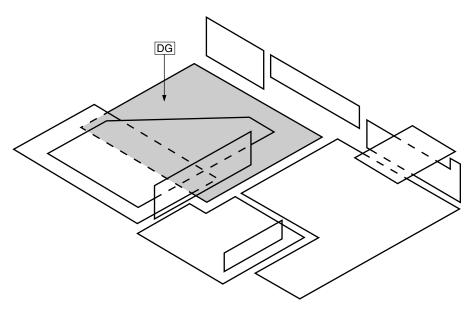




TU-PT700U BL-BOARD TNPA3403

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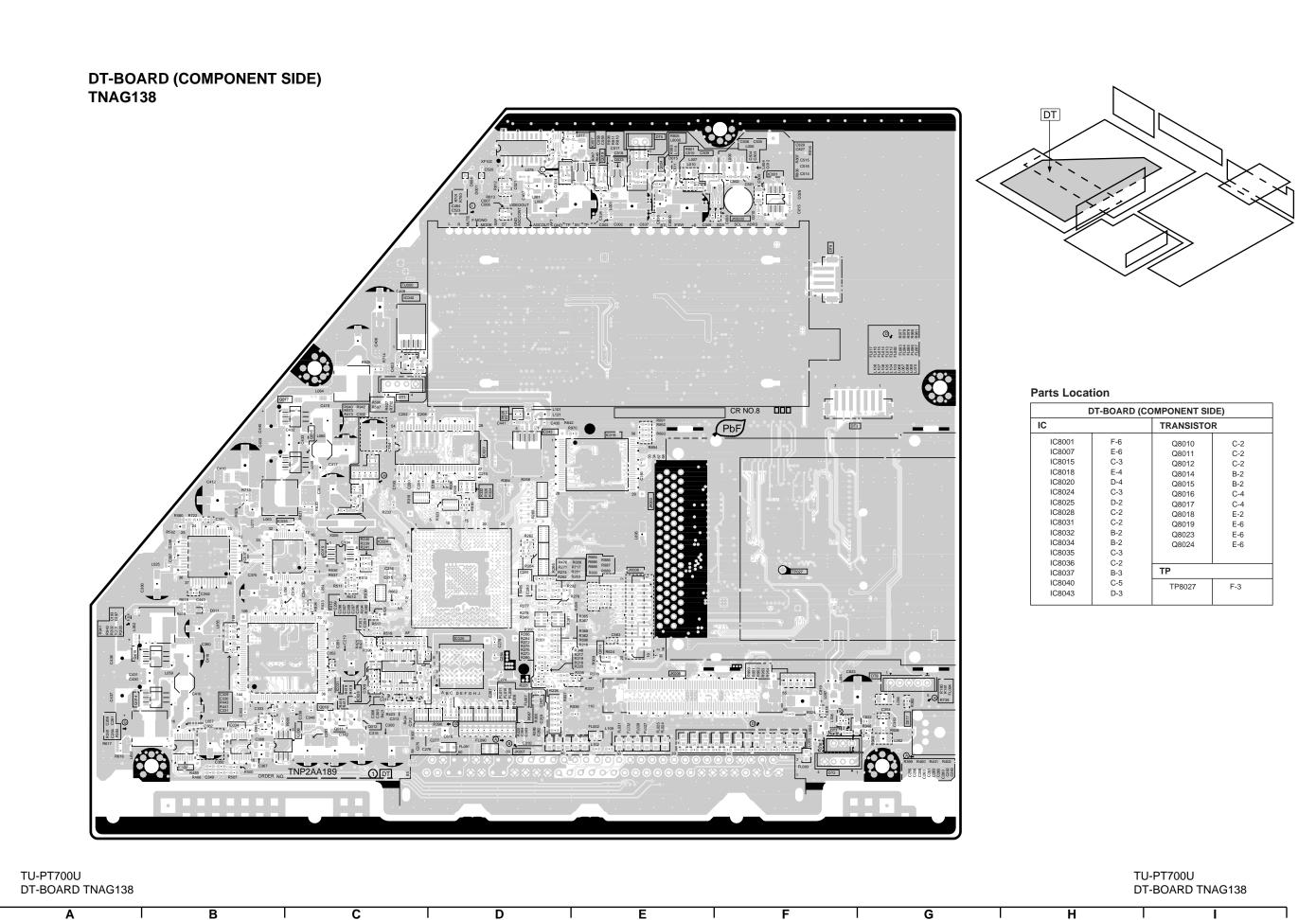


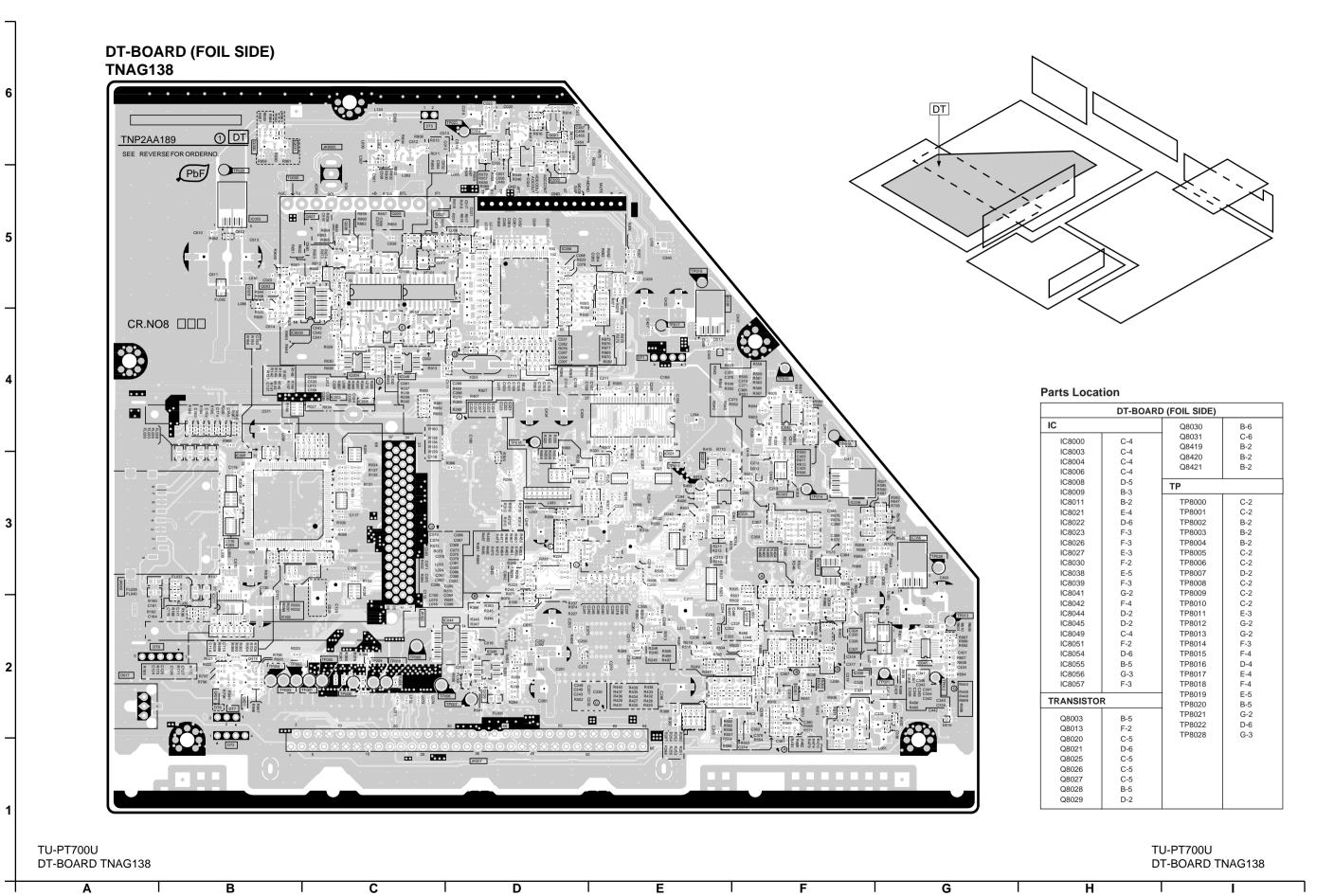
# **Parts Location**

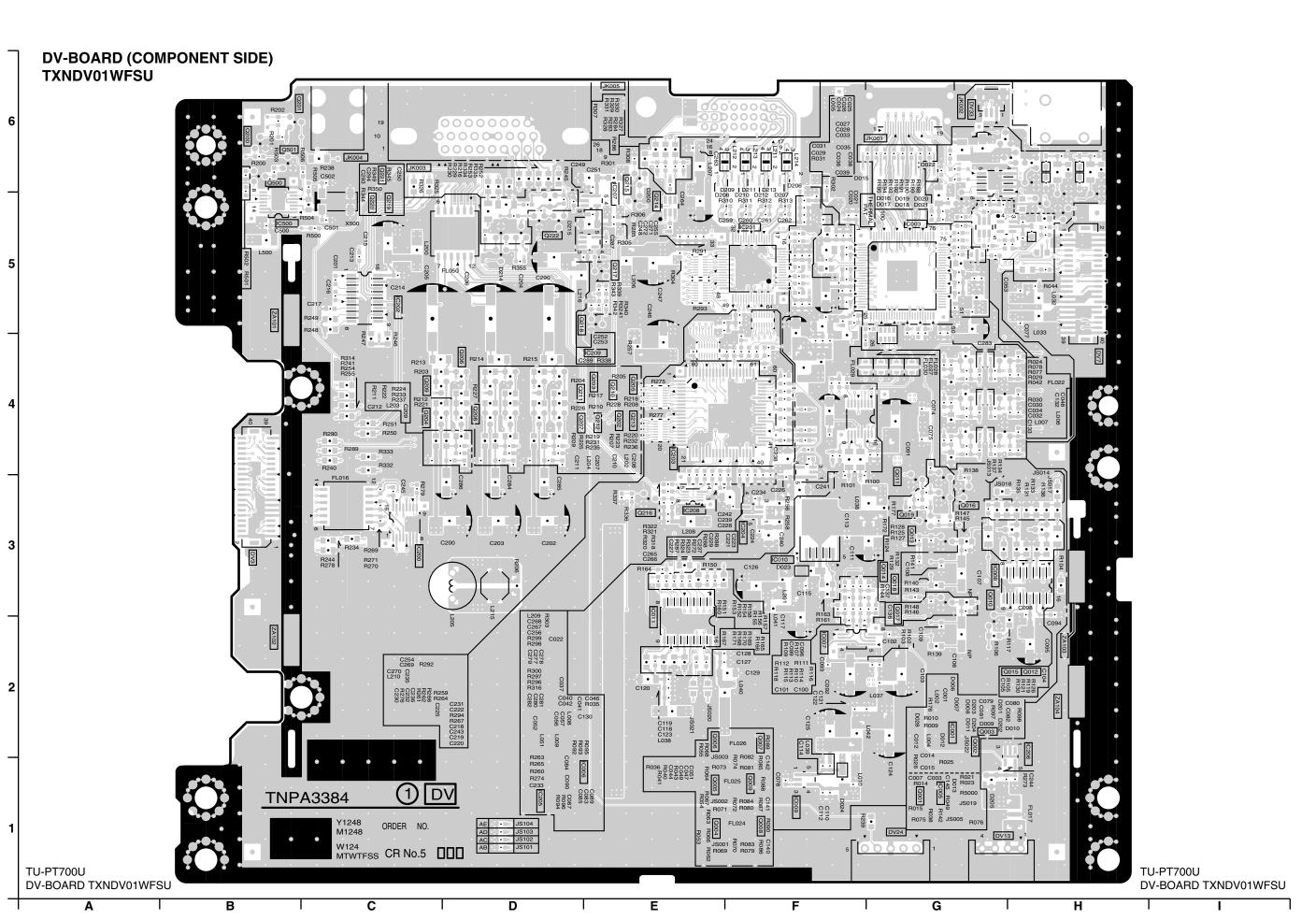
		DG-BOARD	(FOIL SIDE)	)	
IC		Q4501	F-2	Q4558	G-5
IC4003	C-4	Q4502	F-2	Q4559	E-2
IC4004	C-4	Q4503	F-2	Q4560	E-2
IC4503	E-3	Q4504	F-2	Q4570	E-2
IC4504	E-4	Q4505	F-2	TP	
IC4509	E-4	Q4506	F-2		_
IC4511	E-5	Q4507	F-2	TP3801	C-5
IC4512	F-5	Q4508	E-2	TP4013	C-4
IC4516	G-4	Q4509	F-2	TP4301	C-1
IC4518	G-4	Q4511	F-2	TP4578	G-2
IC4522	E-5	Q4512	F-2	TP4580	B-2
IC8200	F-6	Q4513	F-2		
		Q4521	F-5		
TRANSISTO	R	Q4522	G-2		
Q2251	D-4	Q4523	G-2		
Q2255	D-4	Q4524	F-2		
Q2258	D-4	Q4525	F-2		
Q3801	C-5	Q4526	G-2		
Q3802	D-5	Q4527	G-2		
Q3803	D-5	Q4528	F-2		
Q3804	D-3	Q4529	F-2		
Q3805	C-5	Q4530	G-3		
Q4004	D-3	Q4531	G-3		
Q4005	D-3	Q4532	F-3		
Q4025	D-3	Q4533	G-3		
Q4026	D-3	Q4553	G-5		
Q4030	D-3	Q4554	G-5		
Q4032	C-3	Q4555	G-5		
Q4205	G-5	Q4556	G-5		
Q4206	G-5	Q4557	G-5		

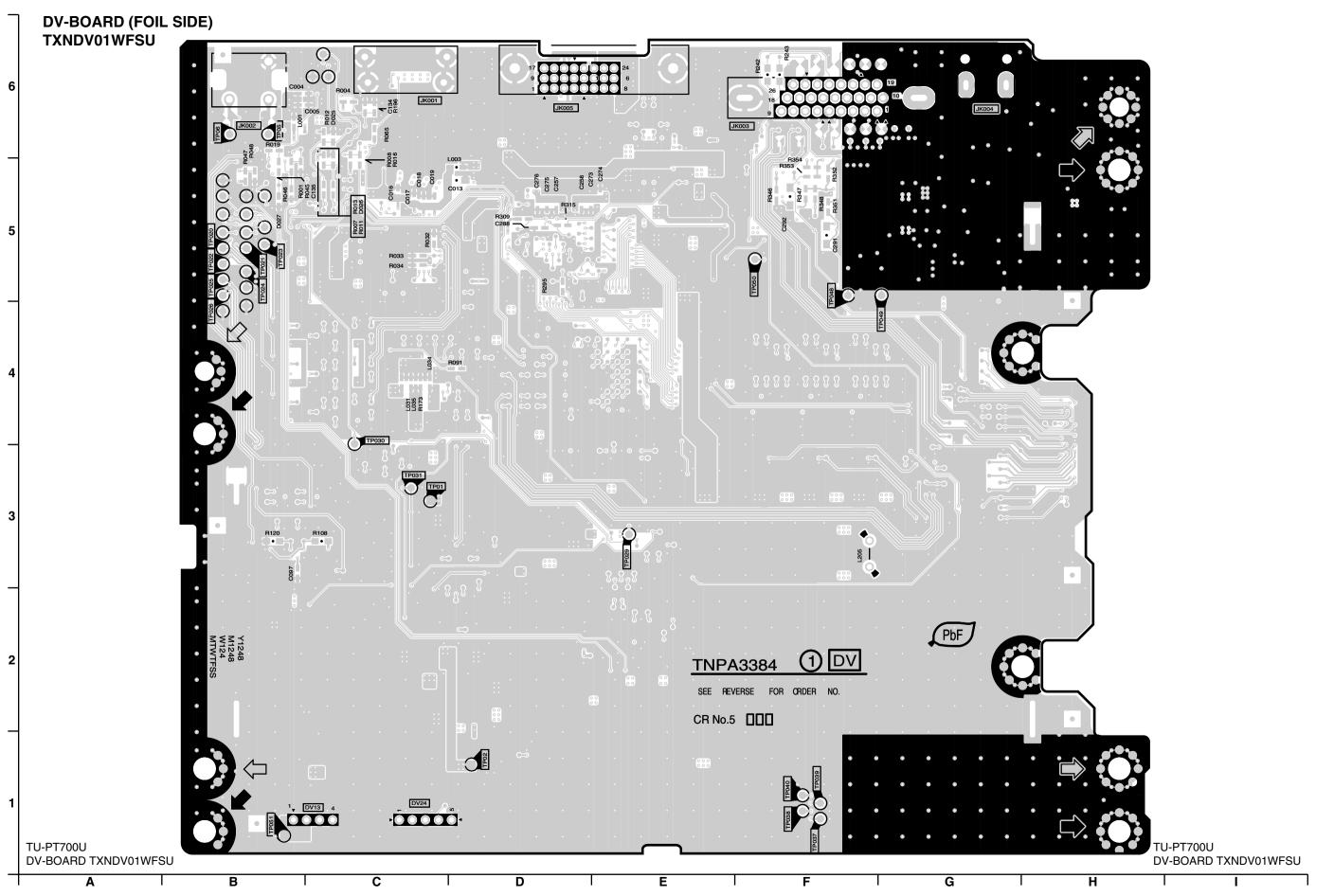
# **Parts Location**

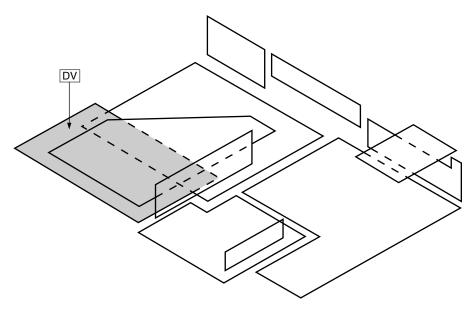
DG-BOARD (COMPONENT SIDE)					
IC		TRANSISTO	3	Q4540	D-2
IC3801	E-5	Q2303	E-4	Q4541	E-2
IC3802	E-5	Q2304	E-4	Q4542	D-2
IC3803	E-5	Q4001	E-4	Q4571	G-3
IC4001	F-4	Q4003	B-3	Q4572	G-3
IC4002	F-3	Q4006	E-2	TP	
IC4005	F-3	Q4007	E-2	TP4014	F-4
IC4203	B-5	Q4008	E-2	TP4411	B-2
IC4501	D-4	Q4009	E-2	TP8100	F-2
IC4502	C-4	Q4020	F-4	11 0100	' -
IC4505	C-2	Q4021	G-4		
IC4506	C-3	Q4022	E-2		
IC4507	D-3	Q4023	E-2		
IC4508	C-3	Q4024	F-2		
IC4510	D-4	Q4027	G-3		
IC4513	C-3	Q4028	G-3		
IC4514	B-3	Q4029	E-4		
IC4515	C-3	Q4031	F-2		
IC4517	B-4	Q4033	G-3		
IC4519	E-3	Q4213	B-5		
IC4520	D-3	Q4214	B-6		
IC4521	E-3	Q4215	C-6		
IC4530	F-3	Q4510	C-2		
IC4810	B-2	Q4534	E-3		
IC4811	D-2	Q4535	E-3		
IC8030	G-5	Q4536	E-3		
IC8031	E-6	Q4537	E-3		
IC8071	F-5	Q4538	E-3		
IC8076	D-5	Q4539	E-3		
IC8201	C-6	Q4540	D-2		









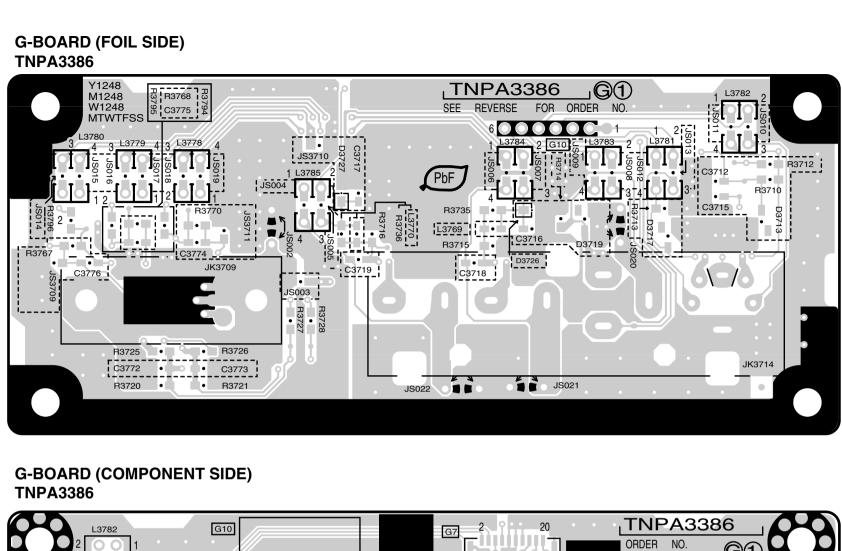


# **Parts Location**

DV-BOARD (FOIL SIDE)					
TP		TP5024	B-5		
TP5001	C-3	TP5025	B-5		
TP5002	D-1	TP5026	B-5		
TP5005	B-6	TP5029	E-3		
TP5006	B-6	TP5030	C-4		
TP5020	B-5	TP5031	C-3		
TP5021	B-5	TP5048	F-5		
TP5022	B-5	TP5049	G-5		
TP5022	B-5	TP5050	F-5		
175025	D-3	TP5051	B-1		

# **Parts Location**

DV-BOARD (COMPONENT SIDE)						
IC	TRANSISTOR		Q5203	E-4		
IC5001	G-2	Q5001	G-1	Q5204	C-4	
IC5003	G-5	Q5002	G-2	Q5205	E-4	
IC5005	G-1	Q5003	G-2	Q5206	D-4	
IC5006	D-1	Q5004	E-1	Q5207	E-4	
IC5007	F-2	Q5005	E-1	Q5208	D-4	
IC5008	G-3	Q5006	E-2	Q5209	C-4	
IC5009	F-1	Q5007	F-2	Q5210	E-4	
IC5010	F-3	Q5008	F-1	Q5211	E-4	
IC5011	E-3	Q5009	F-1	Q5212	E-4	
IC5200	C-3	Q5010	G-3	Q5213	E-4	
IC5201	F-5	Q5011	G-4	Q5214	E-5	
IC5202	C-5	Q5012	H-2	Q5215	E-6	
IC5203	E-4	Q5013	G-3	Q5216	E-3	
IC5204	F-3	Q5014	G-3	Q5217	E-5	
IC5205	D-1	Q5015	H-2	Q5218	E-5	
IC5206	H-2	Q5016	G-3	Q5219	C-5	
IC5207	E-6	Q5017	G-3	Q5220	C-5	
IC5208	E-3	Q5018	G-3	Q5221	C-6	
IC5209	E-4	Q5019	G-3	Q5222	D-5	
IC5500	B-5	Q5200	B-6	Q5500	B-6	
		Q5201	B-6	Q5501	B-6	
		Q5202	E-4			



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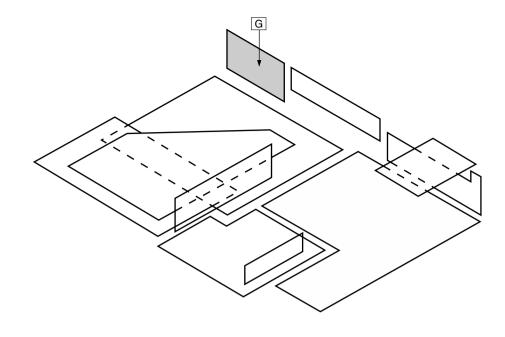
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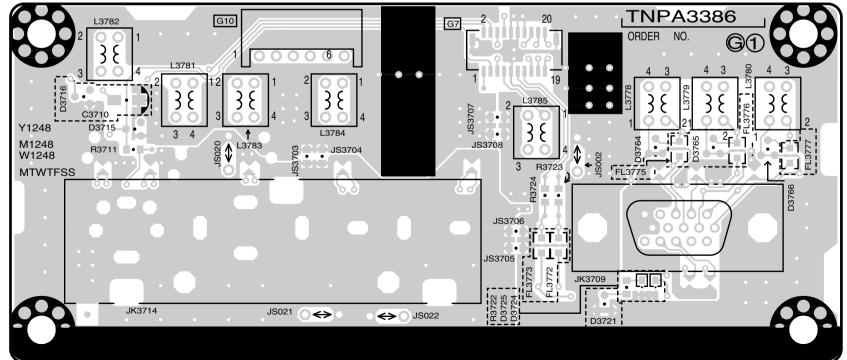
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TU-PT700U

G-BOARD TNPA3386

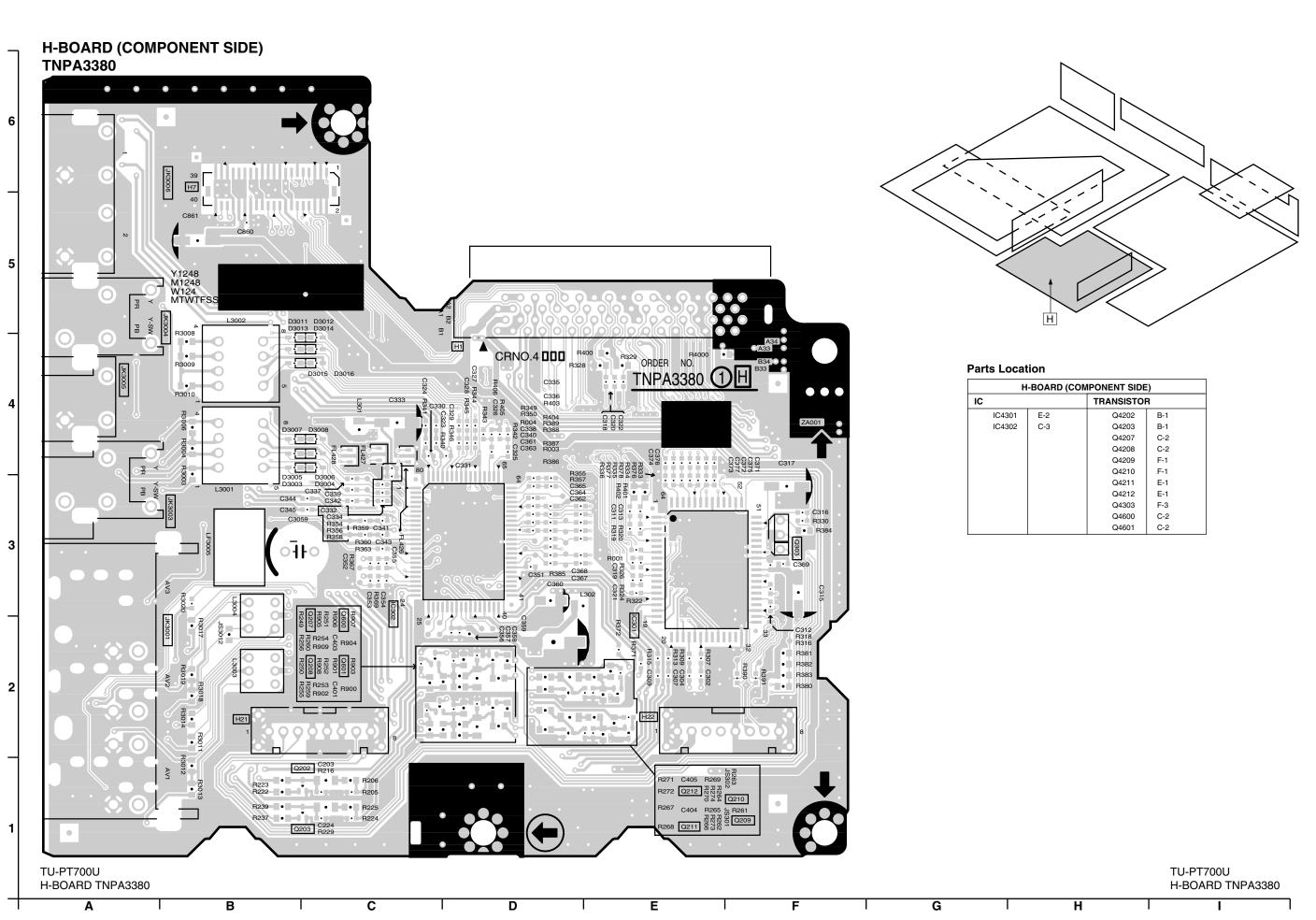


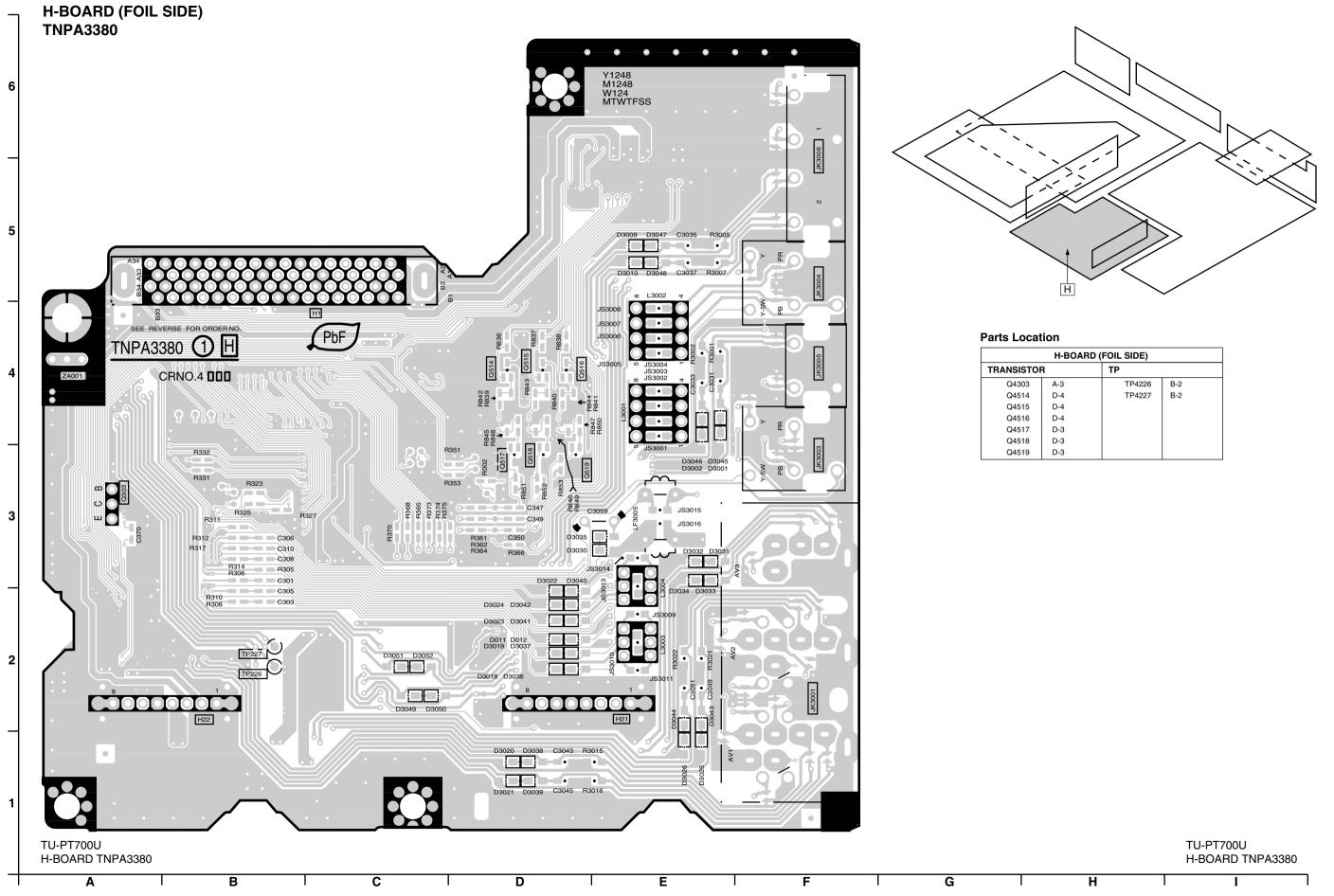


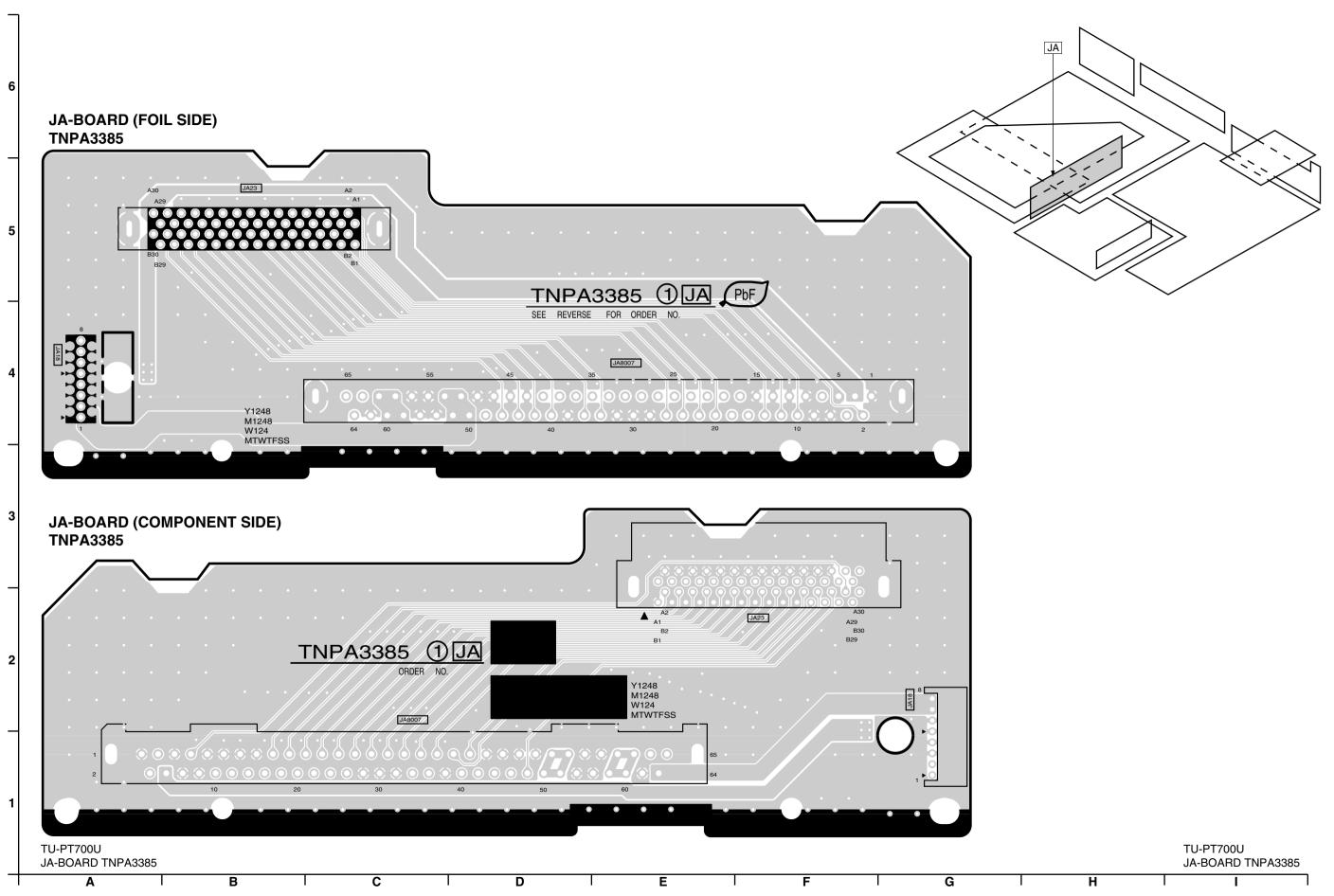
TU-PT700U G-BOARD TNPA3386

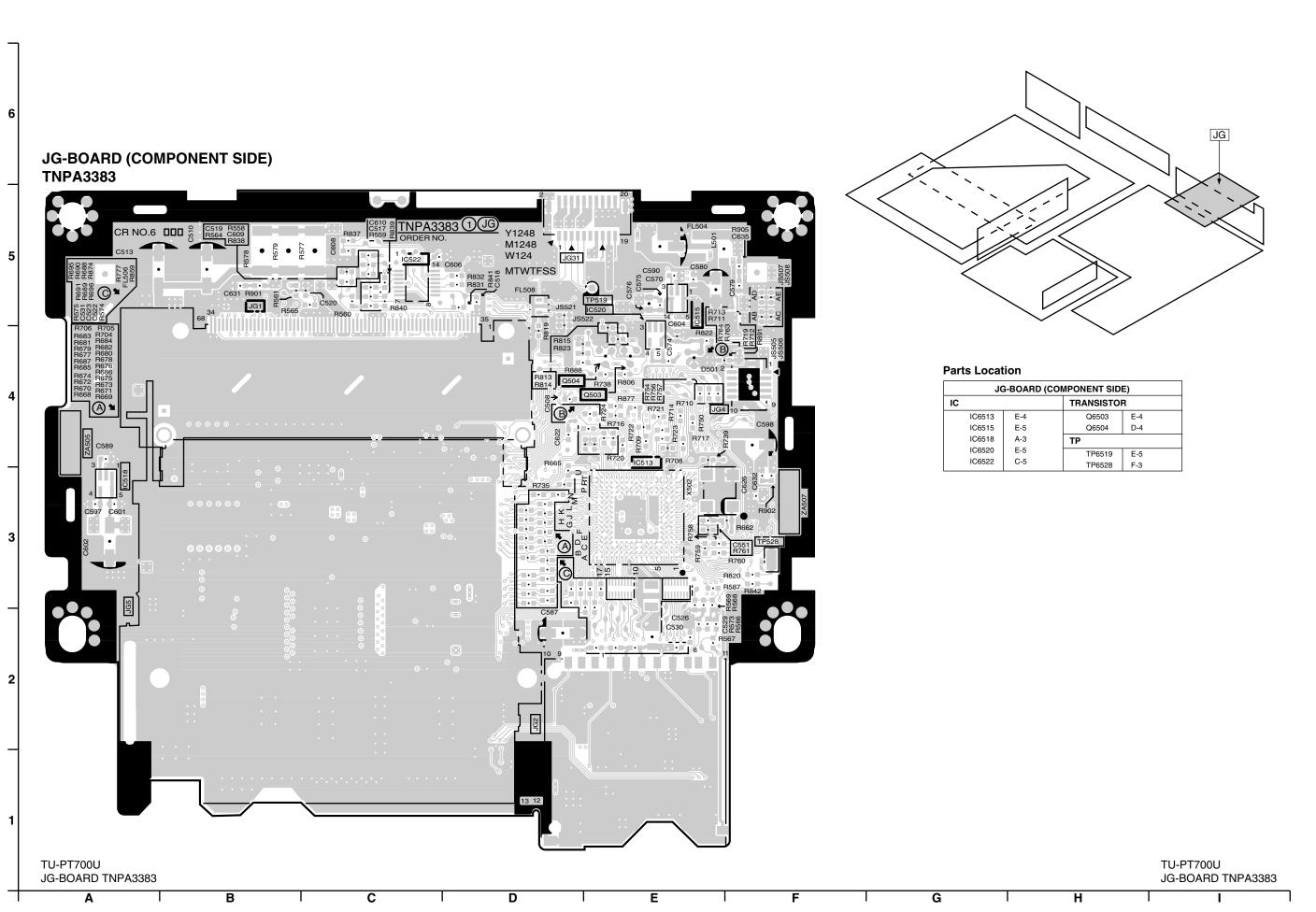
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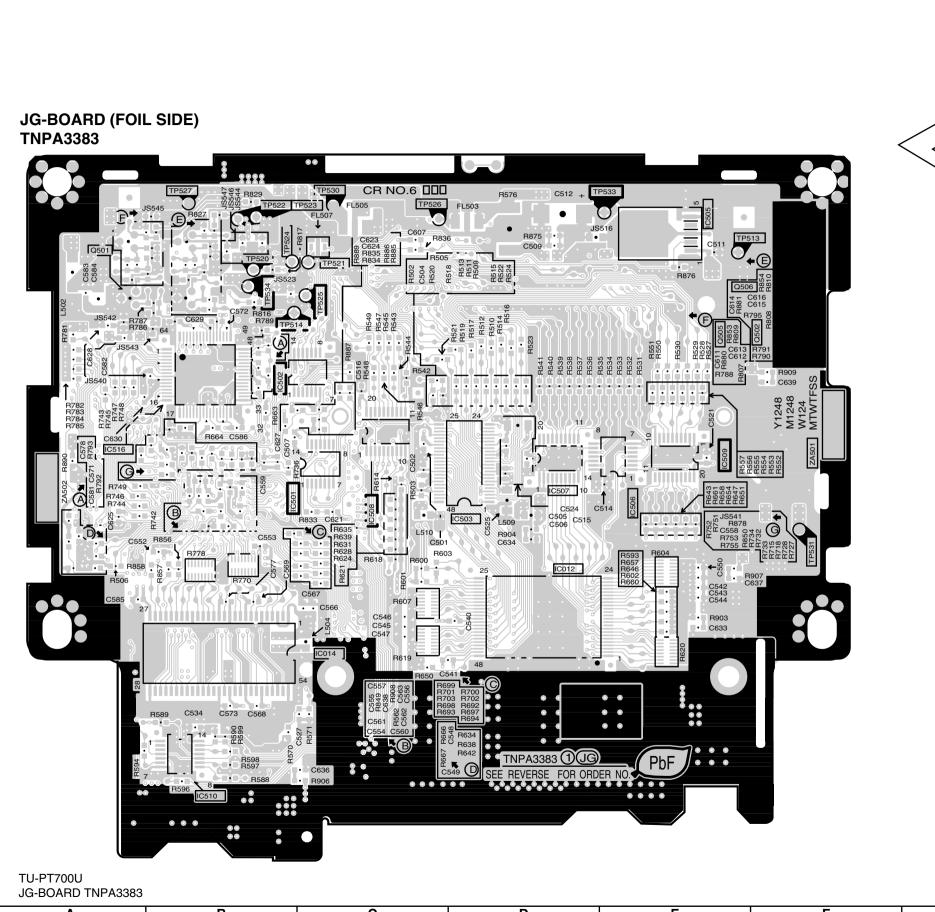
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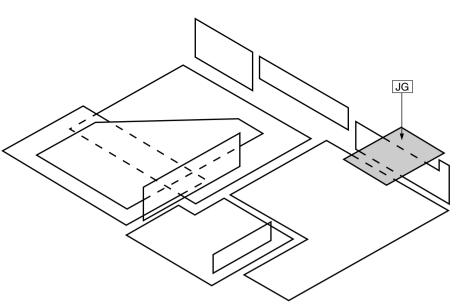




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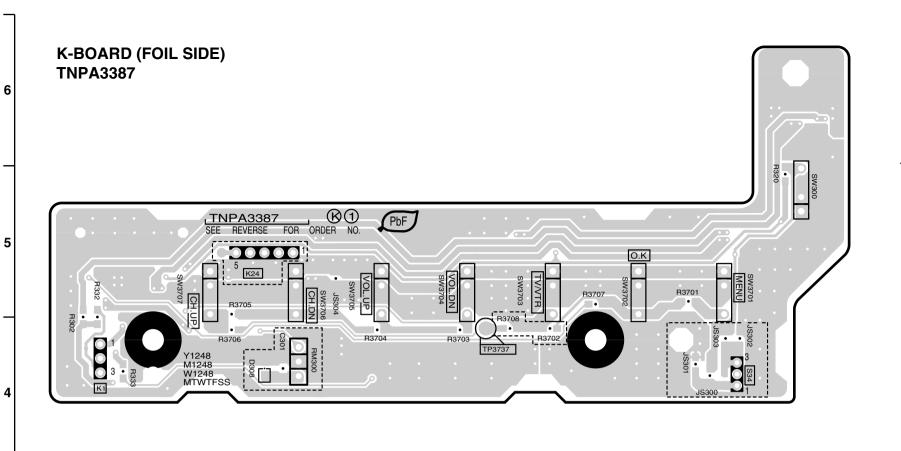


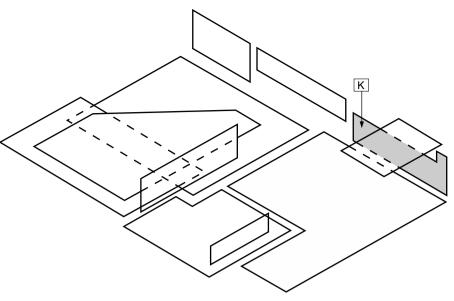
### **Parts Location**

JG-BOARD (FOIL SIDE)					
IC		TP	TP		
IC6012	D-3	TP6513	E-5		
IC6014	C-2	TP6514	B-4		
IC6501	C-3	TP6520	B-5		
IC6502	B-4	TP6521	C-5		
IC6503	D-3	TP6522	B-5		
IC6505	E-5	TP6523	C-5		
IC6506	E-3	TP6524	B-5		
IC6507	D-3	TP6525	C-5		
IC6508	C-3	TP6526	C-5		
IC6509	E-4	TP6527	B-5		
IC6510	B-1	TP6530	C-5		
IC6516	A-4	TP6531	F-3		
TRANSISTOR		TP6533	E-5		
Q6501	A-5	TP6534	B-5		
Q6502	F-4				
Q6505	E-4				
Q6506	E-5				

TU-PT700U JG-BOARD TNPA3383

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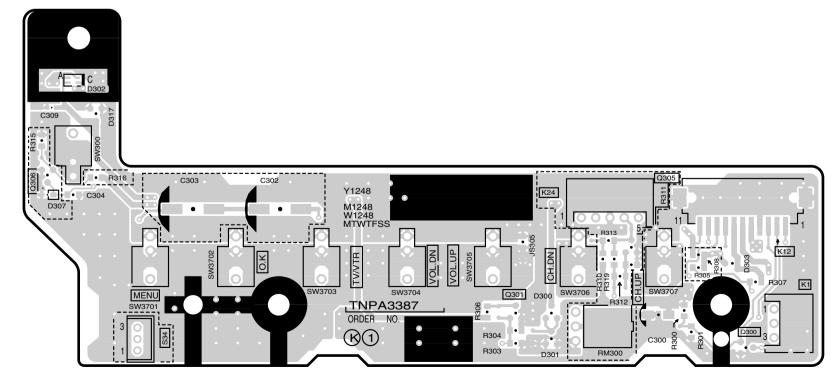




### **Parts Location**

K-BOARD					
IC		TP			
Q300	E-1	TP3737	D-4		
Q301	D-1				
Q305	E-2				
Q306	A-2				





TU-PT700U K-BOARD TNPA3387

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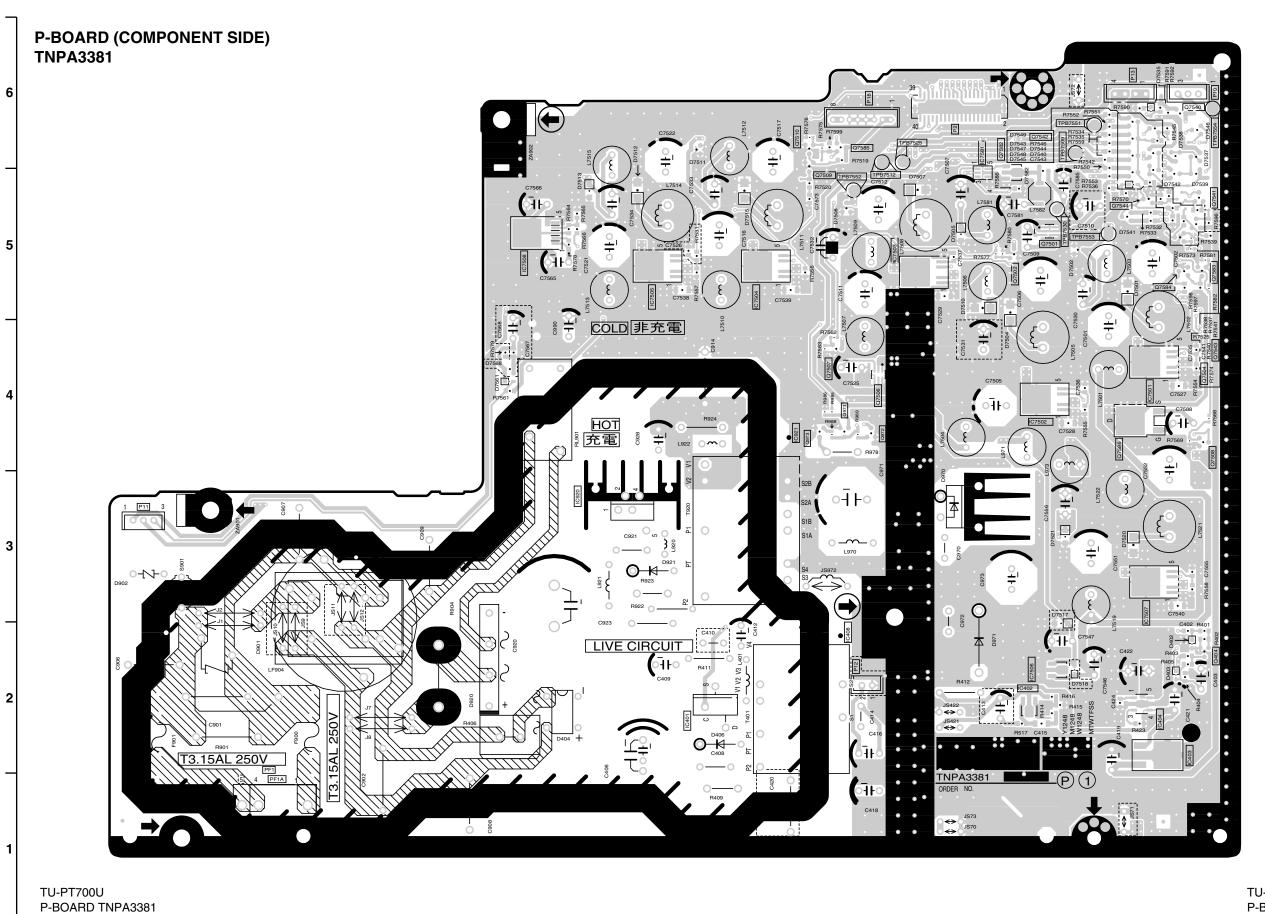
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